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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF FORESTS AND WATERS
DIVISION OF HYDROGRAPHY
HARRISBURG

STREAM FLOW RECORDS
OF
PENNSYLVANIA

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Geological Survey

FOR THE YEAR
October 1, 1938 to September 30, 1939

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STREAM FLOW RECORDS OF PENNSYLVANIA

for the year
OCTOBER 1, 1938 to SEPTEMBER 30, 1939

STREAM GAGING, FLOOD WARNING, PRECIPITATION, AND GROUND WATER

This report contains records for the year ending September 30, 1939. All stream-flow records previous to and including those for 1911, were published in one volume entitled, "Reports of the Water Supply Commission of Pennsylvania—1910 and 1911." For the years 1912 to 1921, they were published in the annual reports of the Water Supply Commission, with the records for 1917-18 and 1919-20 combined and issued in biennial form. Beginning with 1922, the records have been published by the Department of Forests and Waters, Division of Hydrography, in reports entitled, "Stream Flow Records of Pennsylvania." They were published annually with the exception of those for the 4 years, 1929-32, which were issued in one volume. Prior to 1913 they were compiled and published for calendar years. The 1914 records were tabulated for the 9 months, January to September. Subsequent records have been published for the water years, October 1 to September 30.

Since June 1, 1931, the water resources investigations in Pennsylvania, including the collection of stream-flow data, have been carried on under cooperative agreement with the United States Department of the Interior, Geological Survey.

STREAM GAGING

On October 1, 1938, the beginning of the 1939 water year, 95 stream gaging stations were in operation, including the one on Licking Creek near Sylvan, which was transferred by the Geological Survey to the Department of Forests and Waters on October 1, 1935. Three stations were discontinued during the year, 3 that had been previously discontinued were reestablished, 11 new ones were established, 8 that had been previously established by the Corps of Engineers, U. S. Army, Pittsburgh, Pa., and at which some miscellaneous data had been collected, were transferred to the Department of Forests and Waters, Division of Hydrography, for cooperative operation and maintenance; thus making 114 stations in operation at the end of this report period. The location and date of discontinuance of the discontinued stations are as follows:

Allegheny River at Larabee, September 30, 1939.

Dunning Creek at Yount, September 30, 1939.

French Creek at Saegerstown, September 30, 1939.

The stations at Larabee and Yount were superseded by those established at Eldred and Belden where there are more satisfactory conditions for the determination of stream flow. The station at Saegerstown was superseded by the one established at Venango where the records for the stream will be of more value to flood-control operations.

The location and date of reestablishment of the reestablished stations are as follows:

Youghiogheny River at Sutersville, December 9, 1938.

Allegheny River at Kittanning, February 16, 1939.

Youghiogheny River at Youghiogheny River Dam (Confluence), September 1, 1939.

The station at Sutersville was originally established on June 11, 1915, but was discontinued on September 30, 1936, as it was not equipped with a water-stage recorder and there was some uncertainty as to the accuracy of the record owing to regulation of the stream by water-power operations. The station is now provided with water-stage recorder equipment.

A station was established at Kittanning on August 18, 1904, but it was necessary to discontinue it on September 30, 1931, owing to navigation structures being placed in the stream. The present station is located a short distance upstream from the former chain-gage site and is provided with water-stage recorder equipment.

The station at Youghiogheny River Dam was established at the site of the former station on the Youghiogheny River at Confluence by the corps of Engineers, U. S. Army, Pittsburgh, Pa., sometime before September 1, 1939, the date when it was transferred to this Department. The original station was established on September 15, 1904, but was discontinued on September 30, 1922, owing to unsatisfactory conditions which prevented the determination of authentic stream flow records.

The location and date of establishment of the new stations are as follows:

Mahoning Creek at Punxsutawney, October 3, 1938.

Lackawanna River at Old Forge, October 17, 1938.

Clarion River at Cooksburg, November 15, 1938.

Stony Creek at Ferndale, December 8, 1938.

French Creek at Venango, December 13, 1938.

Monongahela River at Braddock, February 1, 1939.

Monongahela River at Greensboro, February 6, 1939.

Allegheny River at Natrona, February 12, 1939.

Dunning Creek at Belden, May 19, 1939.

Allegheny River at Eldred, June 29, 1939.

Aquashicola Creek at Palmerton, September 29, 1939.

The stations at Venango, Belden, and Eldred were established to supersede the three discontinued stations as previously set forth.

The station at Old Forge was established primarily to obtain records for mine-drainage studies. A station was established many years ago on the Lackawanna River at Scranton and another one was maintained at Moosic at a later period, but both stations were discontinued owing to unsatisfactory conditions for the determination of reliable stream-flow records.

The station at Palmerton was established to obtain records for municipal water-supply studies for Palmerton and Bethlehem, while the other six newly established stations were placed in operation in the interests of flood control, navigation, and pollution abatement.

The location and date of transfer of the stations that were acquired from the Corps of Engineers, U. S. Army, are as follows:

Allegheny River near Kinzua, December 15, 1938.

Beaver River at Beaver Falls, September 1, 1939.

Little Conemaugh River at East Conemaugh, September 1, 1939.

Loyalhanna Creek at Loyalhanna Creek Dam, September 1, 1939.

Mahoning Creek at Mahoning Creek Dam, September 1, 1939.

Redbank Creek at Mayport, September 1, 1939.

Stony Creek at Hollsopple, September 1, 1939.

Tionesta Creek at Tionesta, September 1, 1939.

In general these transferred stations were primarily established to obtain records for flood-control, navigation, and pollution-abatement studies. None of the discontinued stations were supplied with recorder equipment. During the year, 9 nonrecording stations, Towanda, Danville, Trout Run, Youngsville, Jefferson, Ursina, Trafford, Wampum, and Pymatuning Dam (Sugar Run); 2 of the reestablished stations, Kittanning and Sutersville; 8 of the newly established stations, Palmer-ton, Old Forge, Belden, Eldred, Cooksburg, Punxsutawney, Greensboro, and Braddock; and 1 of the transferred stations, Kinzua, were supplied with recorders; thus making a total of 86 stations in the State provided with wells, shelters, and water-stage recorders at the end of the 1939 water year.

This volume contains data for 123 stations, as shown by the tables and map on pages 29-33. For stations where there has not been sufficient data collected for the translation of gage heights into terms of stream flow, the current-meter discharge measurements are listed with the miscellaneous discharge measurements made during the year.

Descriptions of stations, tables of daily and monthly discharge, summary of run-off in second-feet per square mile, and run-off depth in inches are given for 107 stations that have a complete record for the year and for 10 stations that have a part-year record. The amounts of precipitation on gaging-station drainage areas and the percent runoff to precipitation are given for the 107 stations that have complete records for the year. The description of the station and the daily mean elevation of the water surface in the reservoir are given for the station on Pymatuning Reservoir at Pymatuning Dam.

Any additional information that may be available and of importance to the engineer making application of these gaging-station records can be obtained upon request to the Department of Forests and Waters, Division of Hydrography, Harrisburg, Pennsylvania.

The outstanding climatic conditions that were closely related to the stream flow of Pennsylvania during the water year 1938-39, were the high temperature and low precipitation. The temperature was above normal during 10 of the 12 months; the excess being nearly 20 degrees. The deviation in temperature ranged from a deficiency of 1.9 degrees

in April to an excess of 5.3 degrees in February. There was subnormal precipitation during 7 of the 12 months, with a balanced deficiency of 4.70 inches. The monthly precipitation ranged from 1.57 inches above normal in February to 2.25 inches below the usual amount in May. During the growing period from May to September, when the stream flows are usually receding slowly, there was an excess of 9.2 degrees in temperature and a deficiency of 5.48 inches in rainfall. The snowfall for the year was about the usual amount, although its distribution for the Winter was unusual.

In November, the average snowfall for the State was 10.9 inches, which is 8.2 inches above the 51-year normal for the month. The heaviest monthly snowfall recorded was 21.2 inches at Shawmont, Philadelphia County. The heaviest recorded in 24 hours was 18.0 inches at Gouldsboro, Wayne County. Over six-tenths of the entire snowfall for the winter occurred late in November and during January.

In general the outstanding features relating to stream flows during the water year 1938-39 were the low maximum discharges during the year, prolonged low-flow periods without the discharges receding to extremely low quantities, high ground-water elevations early in April that gradually receded to extremely low levels late in September, and the short periods that stream flows were affected by ice covers.

The flow in the principal drainage basins of the State for the year ending September 30, 1939, was 9.2 percent below the mean flow for the 30 years, 1910-39, as determined from the total discharge of the Delaware River at Riegelsville, Susquehanna River at Harrisburg, Allegheny River at Franklin, Kiskiminetas River at Avonmore, and Youghiogheny River at Connellsville, which drain a total area of 39,475 square miles or an area equivalent to 87.5 percent of that of Pennsylvania.

In the Delaware River, the flow for the 1939 water year was 9.4 percent above the mean flow for the 30 years, 1910-39. The flow in the Susquehanna River was 12.3 percent below the average flow for the 30 years, while the combined discharge of the Allegheny, Kiskiminetas and Youghiogheny Rivers was 15.9 percent below the mean for the same period.

The highest flows during the year in the major streams of the Delaware River Basin were early in December. None of these streams exceeded flood stages and in general they were from 10 to 16 feet lower than stages previously recorded.

In the Susquehanna River Basin, the highest flows during the year in the primary streams were in February. The only stream that exceeded flood stage was the North Branch of Susquehanna River. At Wilkes-Barre the river reached a stage nearly two feet above flood height, but this stage, however, was more than nine feet below the highest flood recorded at that station. At the other stations in the basin, the stages reached were from 16 to 24 feet below the maximum recorded heights.

The highest flows in the principal streams of the Ohio River Basin also occurred in February. The only streams in the basin that exceeded flood stage were the Monongahela and Ohio Rivers. Those streams

both exceeded flood height by less than half a foot. At Charleroi on the Monongahela River, the stage was 7.4 feet below that of 1888, and at Pittsburgh on the Ohio River, it was 20.6 feet lower than in 1936. On the other major streams in the basin, the stages were from 7 to 25 feet below the highest stages previously recorded.

The low flows in the principal streams of the State during the water year, occurred with but one exception, in the month of September. The lowest flow for the year in the Kiskiminetas River was recorded in November. Although some of the stream flows approached the low yields of drought periods of previous years, the only one to recede below its previous minimum recorded flow was the North Branch of Susquehanna River.

The deficiencies in precipitation for the State as a whole do not seem to be sufficient to warrant the long period of low stream flow during the period May to September. The distribution of the rainfall, however, was extremely erratic. There was excessive precipitation on limited areas that brought the average for the State as a whole far above a fair mean for extensive areas. Furthermore, the gradual depletion of the ground-water supply from early April to late September was a large factor in the extended low-flow periods. Had it not been for the extremely high ground-water levels in March and April, the stream flow would have receded to a much more serious drought condition.

The outstanding feature of the low stream flow of 1939 was its early occurrence. Drought periods usually prevail in late summer or early fall, but in July 1939 some of the streams had receded to yields as low as those occurring in September during some of the extreme drought periods of earlier years.

In the early summer months, agriculture sustained serious losses. Forest fires were numerous and harder to control and extinguish than at ordinary times. The fires burned into the ground to depths of four to ten inches, destroying the soil as well as the roots of trees and plants.

During the late months in the 1938-39 water year, the extended period of high temperature and low precipitation gave Pennsylvania the appearance of drifting into a serious drought condition. Although the water supplies for the generation of power were very much limited, those for domestic and industrial purposes, with but few exceptions, did not recede to alarming proportions.

FLOOD WARNING

The floods of March 1936 set forth the desirability of closely coordinating all of the meteorologic and hydrologic activities in Pennsylvania. The failures in the flood-warning service during the 1936 floods were due in part to the lack of well-developed systems for predicting major flood heights and to the failure of communication systems.

Following several conferences of officials from the National Resources Committee, the United States Weather Bureau, the Department of Forests and Waters, and the United States Geological Survey, the last three organizations signed a cooperative agreement in the spring of 1937 with the ultimate purpose of developing new and more adequate methods

of river forecasting for Pennsylvania's cities and towns requiring this service, and of improving communication facilities so as to prevent, if possible, a duplication of the conditions brought about by the 1936 flood. Thus an organization of engineers was created whose leaders were particularly trained in flood routine methods of forecasting.

With the passage of the State and Federal Flood Control Acts and the start of construction of flood-control works, the Pennsylvania Department of Forests and Waters recognized more than ever before that an adequate flood-forecasting service is an integral part of any program for flood control, since storage reservoirs and dyke controls cannot be operated satisfactorily unless such service is available. Moreover, the Weather Bureau offices cannot be expected to expand their service to take care of needs that are of a purely State nature. The Commonwealth of Pennsylvania accordingly was forced to decide whether this service should be undertaken independently or whether it was better to co-operate with the Federal Government in developing and perfecting the service intended not only for the operation of flood-control works, but also for the benefit of the public at large.

After several conferences between the cooperating parties carrying on the hydrologic studies, these organizations supplemented their agreement to provide for a flood-warning service to be known as the Federal-State Flood Forecasting Service. The new organization already has established offices at Harrisburg and Pittsburgh to take care of the needs of the Susquehanna and Ohio River Basins. A cooperative forecasting center will be established at Philadelphia or Trenton, N. J. in the near future.

Approximately 100 recording rain gages were purchased and installed at strategic locations throughout the Commonwealth. The stream-gaging activities were expanded to include many new stations essential to the studies and recording equipment was installed at many of the older stations.

The Pennsylvania Department of Forests and Waters has installed an ultra-high-frequency radio-communication system for the Susquehanna River Basin, which will not only serve the needs of flood warning but forest-fire protection as well. The system, which is entirely independent of telephonic communication or outside power, will be expanded in the near future to include the Ohio and Delaware River Basins. The teletype system of the United States Weather Bureau has also been brought into the service during the past year.

The pooling of the talents and resources, and the preventing of the duplication of efforts of the three organizations insure the success of the Federal-State Forecasting Service. This service will bring many advantages to the people of Pennsylvania living in areas periodically visited by floods, and will be a vital adjunct to the flood-control program of the State.

PRECIPITATION

Precipitation records for the stations maintained by the Department of Forests and Waters, the Weather Bureau, and private interests were used in preparing the precipitation map and in determining the amounts

of precipitation on the drainage areas above the gaging stations. Prior to 1920, the Water Supply Commission of Pennsylvania published its precipitation records in their annual reports. Since that time, with the exception of stations that are located in close proximity to others, these records have been published in the monthly and annual reports of the United States Department of Agriculture, Weather Bureau. Records for the stations that are not included in the reports of the Weather Bureau are available at the office of the Department of Forests and Waters, Division of Hydrography, Harrisburg, Pennsylvania.

In October there was a deficiency of 1.39 inches in precipitation. During the month the largest amount recorded, which was only 0.47 inch above the 52-year mean for October, was 3.67 inches at Orwigsburg, Schuylkill County. The lowest amount recorded during the month was 0.60 inch at Centre Hall, Centre County.

Although the snowfall was 4.5 inches below the normal amount during February, there was an excess of 1.57 inches of precipitation. The greatest amount of precipitation recorded during the month was 8.60 inches at Zionsville, Lehigh County, while a low of only 2.33 inches was recorded at Covington, Tioga County.

The precipitation for May was 2.25 inches below the normal amount. The greatest amount recorded during the month was only 3.66 inches at Morris Run, Tioga County, while the 52-year mean for May is 3.83 inches. There was only 0.21 inch recorded at Lebanon, Lebanon County, and at Marcus Hook, Delaware County.

The rainfall for June was only 0.33 inch above the normal amount of 4.13 inches. The heaviest precipitation as recorded during the month was 10.96 inches at Uniontown, Fayette County, while at Ephrata, Lancaster County, 4.02 inches fell in 24 hours. The smallest amount recorded during the month was 0.83 inch at Wilkes-Barre, Luzerne County.

In July the rainfall was 1.16 inches below the normal amount of 4.28 inches. At Smithport, McKean County, 8.23 inches was recorded during the month and at Millville, Columbia County, 4.28 inches, the normal amount for the month, fell in 24 hours. The smallest amount recorded during the month was 0.49 inch at Paupack, Pike County.

The rainfall in August was 1.23 inches below the normal amount of 4.21 inches. During the month, 9.65 inches was recorded at Colebrook, Lebanon County, of which 6.74 inches fell in 24 hours. The lowest amount recorded during the month was 0.41 inch at Clearfield, Clearfield County.

The average precipitation for the State during the year ending September 30, 1939, as deducted from the records published by the Weather Bureau, was 37.44 inches, which is 4.70 inches below the normal for the 52 years, 1888-1939.

The yearly totals ranged from a minimum of 26.86 inches at English Center, Lycoming County, to a maximum of 51.21 inches at Zionsville, Lehigh County. There were 7 months in the year with deficiencies in precipitation that ranged from 0.12 to 2.25 inches, while the remaining 5 months showed excesses that ranged from 0.09 to 1.57 inches. A com-

parison of the monthly records with the average monthly amounts for the 52 years, 1888-1939, is shown in the following table:

Precipitation on Pennsylvania for the year ending September 30, 1939

Month	Precipitation in Inches		
	52-Year Average	1938-39	Departure
October	3.20	1.81	-1.39
November	2.85	3.10	+ .25
December	3.11	2.56	— .55
January	3.26	3.14	— .12
February	2.88	4.45	+1.57
March	3.50	3.59	+ .09
April	3.43	3.70	+ .27
May	3.83	1.58	-2.25
June	4.13	4.46	+ .33
July	4.28	3.12	-1.16
August	4.21	2.98	-1.23
September	3.46	2.95	— .51
The Year	42.14	37.44	-4.70

The distribution of precipitation on Pennsylvania during the year ending September 30, 1939, is shown by the map on page 19.

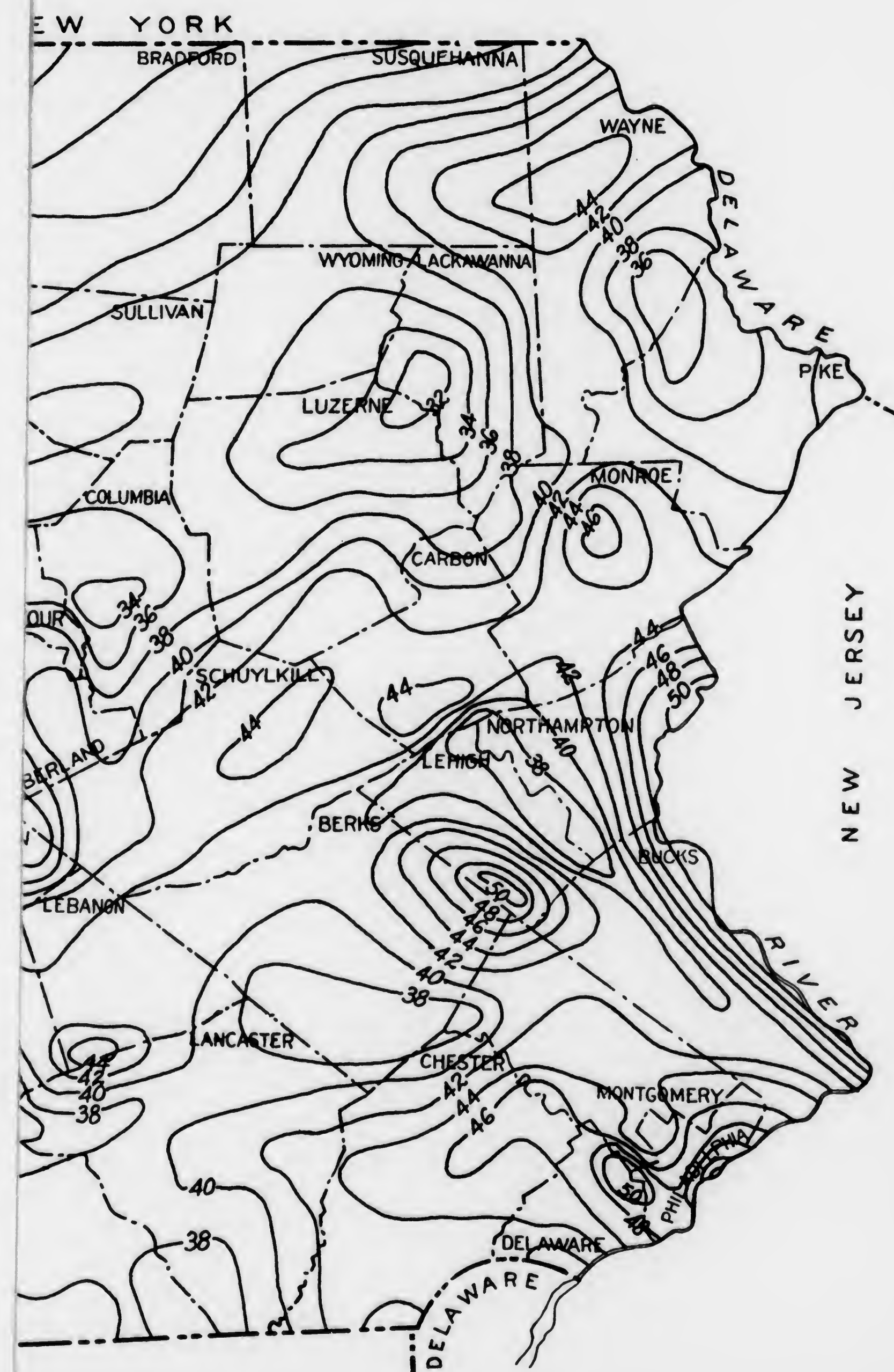
As computed from the Pennsylvania precipitation records used by the Division of Hydrography in preparing the precipitation map and in determining the percent run-off to precipitation at gaging stations, the average precipitation was about 42.4 inches on the Delaware River Basin, 35.9 inches on the Susquehanna River Basin, and 36.9 inches on the Ohio River Basin.

The monthly and yearly precipitation on Pennsylvania, as deducted from the published records of the Weather Bureau, is shown in the following table:

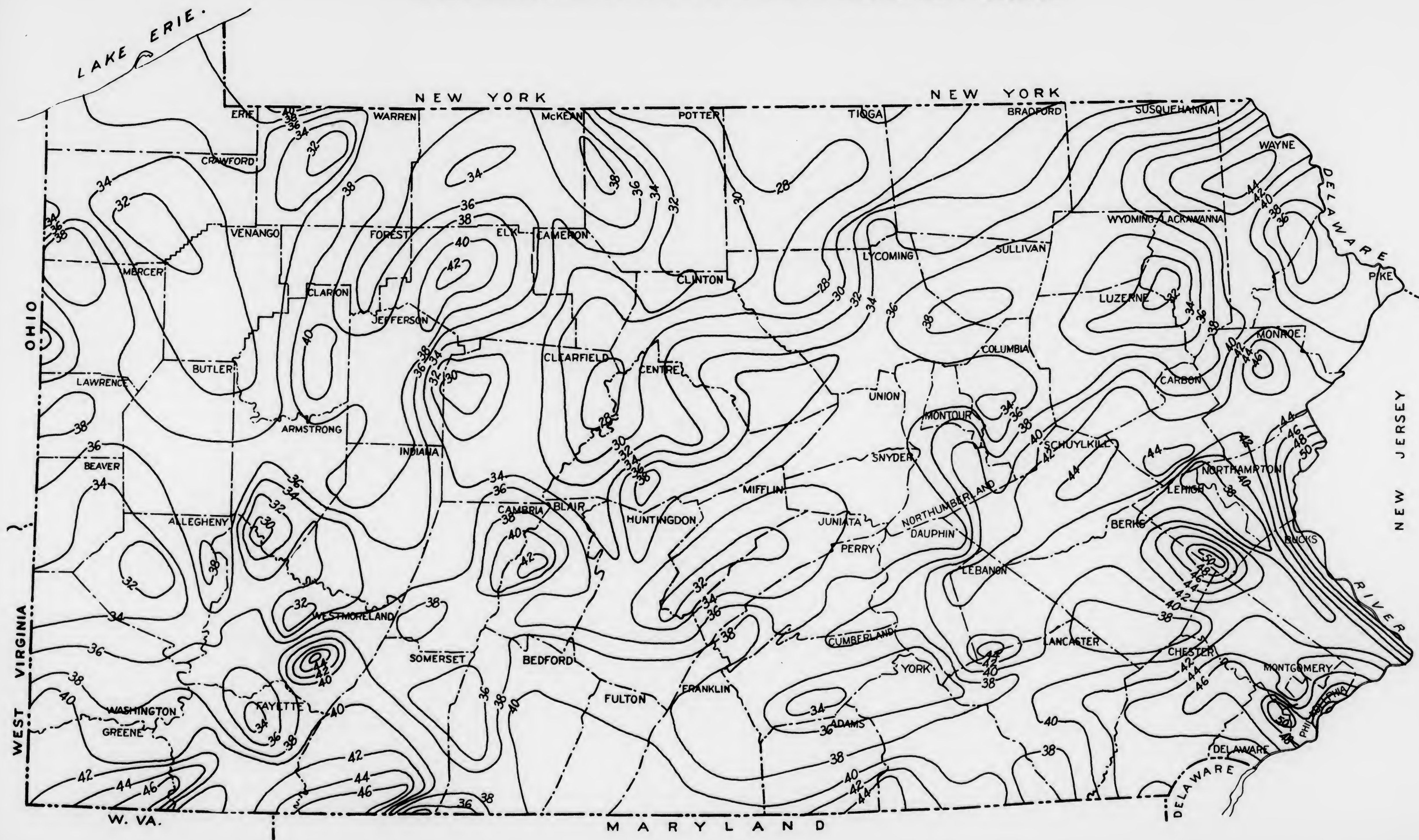
PRECIPITATION ON PENNSYLVANIA FOR THE 52 YEARS ENDING SEPTEMBER 30, 1939.

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1887-88	1.70	1.92	3.56	4.19	2.50	3.55	2.52	4.24	3.04	3.45	7.05	4.84	42.56
1888-89	4.02	3.37	3.14	3.64	1.96	2.90	4.50	5.91	5.43	6.80	3.24	5.05	49.86
1889-90	3.85	6.72	2.77	3.04	4.32	5.15	3.46	6.71	3.42	3.52	5.76	4.57	53.29
1890-91	5.87	1.49	3.97	3.64	4.61	5.10	2.06	2.12	4.50	6.32	5.09	2.39	47.18
1891-92	3.06	2.65	4.09	4.77	1.75	4.14	2.04	5.70	5.64	3.93	3.77	2.81	44.35
1892-93	.72	4.34	1.69	2.85	5.92	2.52	4.74	5.54	3.12	3.15	4.50	2.67	41.76
1893-94	3.26	2.93	3.06	2.29	3.53	1.63	3.62	8.88	2.57	2.32	1.84	6.30	42.23
1894-95	4.26	2.50	3.95	4.17	1.22	2.31	3.76	2.68	3.50	3.24	3.23	1.71	36.53
1895-96	1.99	2.48	3.22	1.43	4.90	4.51	1.75	2.85	4.64	6.89	2.22	4.82	41.70
1896-97	3.19	3.55	1.20	2.15	3.28	3.22	3.30	5.24	3.38	6.26	3.17	2.18	40.12
1897-98	1.32	5.28	3.96	4.25	2.23	4.31	2.93	5.11	2.79	3.36	6.00	1.70	43.83
1898-99	5.20	4.03	2.98	3.05	4.05	4.87	1.76	3.82	3.51	3.91	4.01	4.70	45.89
1899-00	1.55	2.66	3.04	2.64	4.22	3.61	1.57	2.79	3.60	4.86	3.33	1.77	35.64
1900-01	2.74	4.10	2.08	2.22	.96	4.14	5.41	5.56	3.47	3.88	6.81	3.39	44.76
1901-02	1.23	2.56	5.91	2.80	3.99	3.98	3.56	1.96	5.97	6.04	2.62	4.06	45.28
1902-03	4.64	1.53	5.54	3.31	4.49	4.52	3.53	1.67	6.53	5.36	5.29	2.09	48.50
1903-04	4.64	2.18	2.66	3.55	2.41	4.29	3.45	3.78	4.06	4.68	4.36	3.37	43.43
1904-05	2.87	1.14	2.48	3.70	1.70	3.86	2.84	2.59	4.39	4.87	5.71	3.41	39.56
1905-06	4.23	2.47	3.57	2.53	1.70	4.46	3.13	3.23	5.43	4.31	5.62	2.46	43.14
1906-07	4.46	1.48	3.97	4.36	1.91	4.26	2.64	3.08	4.99	3.84	2.94	6.37	44.30
1907-08	3.16	3.60	4.30	2.68	4.65	4.76	3.51	6.28	2.36	4.81	3.22	1.60	44.93
1908-09	1.95	.90	2.86	2.92	4.84	3.07	5.39	2.90	4.48	2.14	2.31	2.27	36.03
1909-10	2.27	1.40	3.39	5.55	3.59	.56	5.07	3.38	4.31	2.42	2.61	4.49	39.04
1910-11	1.91	2.45	2.65	3.54	2.27	2.57	3.79	1.97	4.71	2.81	7.63	5.29	41.59
1911-12	4.83	2.84	3.27	1.92	2.20	5.05	4.39	3.15	3.36	5.29	5.02	5.57	46.89
1912-13	2.74	2.17	3.27	4.95	1.84	5.27	3.82	3.86	2.26	4.16	2.69	3.28	40.31
1913-14	5.44	3.05	2.63	3.37	2.78	2.61	4.66	3.34	3.71	4.19	3.85	.99	40.62
1914-15	2.35	1.76	4.63	5.56	3.90	1.28	1.92	4.16	4.00	5.28	6.71	2.56	44.11
1915-16	2.65	2.18	4.06	2.42	3.08	4.12	3.65	3.19	6.14	4.45	2.57	3.77	42.28
1916-17	2.25	2.27	3.07	3.60	1.46	3.68	2.08	3.39	5.38	4.33	6.09	2.31	40.51
1917-18	6.38	.63	1.78	3.51	2.46	2.34	4.53	5.04	3.46	3.06	4.12	3.97	41.27
1918-19	3.17	2.03	3.38	2.53	2.23	3.57	2.70	5.80	3.90	5.43	5.12	2.07	42.71
1919-20	4.77	5.35	2.61	2.47	2.44	2.83	4.39	2.02	4.97	4.37	4.66	3.99	44.87
1920-21	1.67	3.54	3.28	2.58	2.59	3.33	3.11	3.93	3.12	4.13	3.83	4.66	39.79
1921-22	2.16	5.75	2.59	2.26	1.99	4.37	3.17	3.21	5.11	3.68	3.14	1.48	38.91
1922-23	2.51	1.21	2.75	4.26	2.16	2.49	2.94	3.50	2.73	4.24	3.10	3.55	35.44
1923-24	2.38	2.83	4.99	4.34	2.94	2.83	4.15	5.71	5.57	3.42	3.78	6.44	49.38
1924-25	.28	1.54	2.13	3.53	2.16	2.56	2.32	3.49	3.04	5.67	2.28	2.80	31.70
1925-26	4.83	3.56	1.72	2.80	4.06	1.91	2.03	1.78	3.63	3.82	5.69	5.81	41.64
1926-27	4.51	4.49	2.58	2.90	3.48	2.61	3.52	4.14	3.72	4.97	4.12	2.08	43.12
1927-28	6.40	4.95	4.41	2.06	3.42	3.24	5.50	2.23	7.96	5.44	4.60	2.33	52.56
1928-29	1.78	2.32	1.16	3.37	2.87	2.69	6.12	4.81	3.56	2.81	2.52	3.71	37.72
1929-30	5.59	3.39	2.77	2.25	2.69	3.03	2.71	3.03	4.20	2.23	1.47	2.45	35.81
1930-31	.99	1.48	2.29	1.46	1.98	2.96	3.33	5.28	3.71	5.28	4.01	3.15	35.82
1931-32	1.83	1.52	2.85	4.51	1.64	4.41	1.71	3.69	3.15	3.39	2.82	1.45	32.97
1932-33	5.31	4.75	2.19	2.00	2.30	5.33	4.49	5.86	2.58	4.26	7.61	4.66	51.34
1933-34	1.91	1.55	2.88	2.54	1.31	2.96	3.06	2.51	3.64	4.01	4.94	6.58	37.89
1934-35	1.46	3.61	2.55	3.08	2.67	2.62	2.56	3.00	4.22	5.63	3.91	3.51	38.82
1935-36	2.77	3.84	2.62	4.21	2.33	6.84	3.01	2.09	3.80	2.88	4.96	2.17	41.52
1936-37	3.69	2.40	4.19	6.36	2.32	2.00	5.53	3.39	4.37	4.47	5.43	1.90	46.06
1937-38	5.84	2.56	2.45	2.51	2.85	3.19	2.85	3.85	5.14	4.81	2.90	4.74	43.69
1938-39	1.81	3.10	2.56	3.14	4.45	3.59	3.70	1.58	4.46	3.12	2.98	2.95	37.44
Mean	3.20	2.85	3.11	3.26	2.88	3.50	3.43	3.83	4.13	4.28	4.21	3.46	42.14

PT. 30, 1939



MAP SHOWING PRECIPITATION FOR THE YEAR ENDING SEPT. 30, 1939



GROUND WATER

A general summary of a historic nature which describes the State-wide program of observing ground-water conditions in Pennsylvania, was printed in the Stream Flow Records of Pennsylvania for the year ending September 30, 1938.

The ground-water observations were continued in 1939, and weekly measurements were made at 30 observation wells. A comparison of the averages of the 1939 water levels with those for corresponding dates in previous years shows a wide range and an unusual deviation from the general average. Ground-water levels were exceptionally high from February to April and unusually low in August and September.

The range in water levels in 1939 was 6.28 feet. This range has been exceeded only once by a range of 7.87 feet in 1936. In 1939 a new high level was observed at one well. New low levels were recorded at 12 wells as follows: One in August, four in September, and seven after the end of the water year covered by this report.

The following table shows not only the average ground-water level, referred to arbitrary datum, for the 8 years ending September 30, 1939, and for the period of record, but also the annual departure from the mean for the period of record, and the maximum and minimum recorded for each year and for the period of record.

GROUND-WATER LEVELS, IN FEET, AT OBSERVATION WELLS IN PENNSYLVANIA
FOR THE 8 YEARS ENDING SEPTEMBER 30, 1939.

Year	Average	Departure	Maximum	Minimum
1931-32	12.18*	-0.72	14.95 Apr. 2	9.73 Sept. 24 and Oct. 1
1932-33	13.15	+ .25	15.40 Apr. 15	10.71 Oct. 8 and 15
1933-34	12.43	- .47	14.62 Apr. 14	10.77 Sept. 1
1934-35	13.02	+ .12	15.04 Mar. 23	10.79 Sept. 28
1935-36	12.56	- .34	17.87 Mar. 21	10.00 Sept. 26
1936-37	13.37	+ .47	16.65 May 1	10.10 Oct. 3
1937-38	13.50	+ .60	16.20 Mar. 19	10.76 Oct. 9 and Sept. 10
1938-39	12.92	+ .02	16.15 Apr. 1	9.87 Sept. 23
Period	12.90	-----	17.87 Mar. 21 1936	9.73 Sept. 24 and Oct. 1 1932

* Average for 45 weeks, Nov. 28, 1931, to Oct. 1, 1932.

The table shows that for the year as a whole the elevation of the ground water was slightly above the average for the 8-year period. The high levels from February to April slightly overbalanced the low elevations during some of the other months.

In February there was a rapid rise in ground-water levels and during the last 2 weeks of the month they were at a higher elevation than they had been at the same period during the past 7 years. The average water level for March was next to the highest on record, while that for April was the highest recorded.

The drought of 1939 produced the longest period of extremely low ground-water levels in the 8 years of record. It is fortunate that this period of low levels was preceded by a period in the winter and spring during which the levels were among the highest recorded. If the 1939 decline in ground-water levels had started from an average spring

height, the drought would have resulted in much more serious ground-water conditions.

The ground-water levels for Pennsylvania, including the locations and descriptions of observation wells, are published in detail by the Geological Survey in their Water Supply Papers entitled, "Water Levels and Artesian Pressure in Observation Wells in United States."

STREAM FLOW RECORDS

DEFINITIONS OF TERMS

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off in inches, acre-feet and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, and run-off in inches. They may be defined as follows:

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average velocity of 1 foot per second. It is generally used as a fundamental unit from which others are computed.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

"Run-off in inches" is the depth to which an area would be covered if all the water flowing from it in a given period were uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in inches.

An "acre-foot" is equivalent to 43,560 cubic feet and is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage and irrigation.

The following terms not in common use are here defined:

"Stage-discharge relation"—an abbreviation for the term "relation of gage height to discharge."

"Control"—a term used to designate the natural section or stretch of the channel or artificial structure below the gage which determines the stage-discharge relation at the gage.

CONVERSION TABLES

The following tables afford a ready means of conversion between the terms in common use in hydraulic computations,

Discharge in second-feet per square mile into run-off in depth in inches

Discharge (second-feet per square mile)	Run-off (depth in inches)				
	1 day	28 days	29 days	30 days	31 days
1	0.03719	1.041	1.079	1.116	1.153
2	.07438	2.083	2.157	2.231	2.306
3	.11157	3.124	3.236	3.347	3.459
4	.14876	4.165	4.314	4.463	4.612
5	.18595	5.207	5.393	5.578	5.764
6	.22314	6.248	6.471	6.694	6.917
7	.26033	7.289	7.550	7.810	8.070
8	.29752	8.331	8.623	8.925	9.223
9	.33471	9.372	9.707	10.041	10.376

Note—For part of a month multiply the run-off for 1 day by the number of days.

Discharge in second-feet into run-off in acre-feet

Discharge (second-feet)	Run-off (acre-feet)				
	1 day	28 days	29 days	30 days	31 days
1	1.983	55.54	57.52	59.50	61.49
2	3.967	111.1	115.0	119.0	123.0
3	5.950	166.6	172.6	178.5	184.5
4	7.934	222.1	230.1	238.0	246.0
5	9.917	277.7	287.6	297.5	307.4
6	11.90	333.2	345.1	357.0	368.9
7	13.88	388.8	402.6	416.5	430.4
8	15.87	444.3	460.2	476.0	491.9
9	17.85	499.8	517.7	535.5	553.4

Note—For part of a month multiply the run-off for 1 day by the number of days.

Discharge in second-feet into run-off in millions of cubic feet

Discharge (second-feet)	Run-off (millions of cubic feet)				
	1 day	28 days	29 days	30 days	31 days
1	0.0864	2.419	2.506	2.592	2.678
2	.1728	4.838	5.012	5.184	5.356
3	.2592	7.257	7.518	7.776	8.034
4	.3456	9.676	10.02	10.37	10.71
5	.4320	12.10	12.53	12.96	13.39
6	.5184	14.51	15.04	15.55	16.07
7	.6048	16.93	17.54	18.14	18.75
8	.6912	19.35	20.05	20.74	21.42
9	.7776	21.77	22.55	23.33	24.10

Note—For part of a month multiply the run-off for 1 day by the number of days.

Discharge in second-feet into run-off in millions of gallons

Discharge (second-feet)	Run-off (millions of gallons)				
	1 day	28 days	29 days	30 days	31 days
1	0.6463	18.10	18.74	19.39	20.04
2	1.293	36.20	37.48	38.78	40.08
3	1.939	54.30	56.22	58.17	60.12
4	2.585	72.40	74.96	77.56	80.16
5	3.232	90.50	93.70	96.95	100.2
6	3.878	108.6	112.4	116.3	120.2
7	4.524	126.7	131.2	135.7	140.3
8	5.170	144.8	149.9	155.1	160.3
9	5.817	162.9	168.7	174.5	180.4

Note—For part of a month multiply the run-off for 1 day by the number of days.

Velocity in feet per second into velocity in miles per hour

(1 foot per second=0.681818 mile per hour, or very nearly two-thirds mile per hour; 1 mile per hour=1.46666 feet per second. In computing the table the values 0.68182 and 1.4667 were used).

Feet per second (units)	Miles per hour for tenths of foot per second									
	0	1	2	3	4	5	6	7	8	9
0	0.000	0.068	0.136	0.205	0.273	0.341	0.409	0.477	0.545	0.614
1	.682	.750	.818	.886	.955	1.02	1.09	1.16	1.23	1.30
2	1.36	1.43	1.50	1.57	1.64	1.70	1.77	1.84	1.91	1.98
3	2.05	2.11	2.18	2.25	2.32	2.39	2.45	2.52	2.59	2.66
4	2.73	2.80	2.86	2.93	3.00	3.07	3.14	3.20	3.27	3.34
5	3.41	3.48	3.55	3.61	3.68	3.75	3.82	3.89	3.95	4.02
6	4.09	4.16	4.23	4.30	4.36	4.43	4.50	4.57	4.64	4.70
7	4.77	4.84	4.91	4.98	5.05	5.11	5.18	5.25	5.32	5.39
8	5.45	5.52	5.59	5.66	5.73	5.80	5.86	5.93	6.00	6.07
9	6.14	6.20	6.27	6.34	6.41	6.48	6.55	6.61	6.68	6.75

CONVENIENT EQUIVALENTS

LENGTH

1 inch=1/12 foot=0.027778 yard=0.000015788 mile=2.54 centimeters.
 1 foot=12 inches=1/3 yard=0.00019399 mile=0.3048 meter.
 1 yard=36 inches=3 feet=0.00056618 mile=0.9144 meter.
 1 mile=63,360 inches=5,280 feet=1,760 yards=1.60935 kilometers.
 1 meter=100 centimeters=0.001 kilometer=39.37 inches=3.2808 feet=1.0936 yards=0.00062137 mile.

SURFACE

1 square inch=0.000645 square foot=0.0007716 square yard=0.0000001594 acre=0.000000002491 square mile=6.45163 square centimeters.
 1 square foot=144 square inches=1/9 square yard=0.000022957 acre=0.0000003587 square mile=0.092903 square meter.
 1 square yard=1,296 square inches=9 square feet=0.0002066 acre=0.0000003228 square mile=0.83613 square meter.
 1 acre=6,272,640 square inches=43,560 square feet=4,840 square yards=0.0015625 square mile=208.71 feet square=0.404687 hectare.
 1 square mile=4,014,489,600 square inches=27,878,400 square feet=3,097,600 square yards=640 acres=259 hectares.
 1 square meter=10,000 square centimeters=0.0001 hectare=0.000001 square kilometer=1,550 square inches=10.7639 square feet=1.19608 square yards=0.0002471 acre=0.0000008861 square mile.

VOLUME

1 cubic inch=0.004329 United States gallon=0.0006787 cubic foot=16.3872 cubic centimeters.
 1 United States gallon=231 cubic inches=0.13368 cubic foot=0.00000307 acre foot=3.78543 liters.
 1 cubic foot=1,728 cubic inches=7.4805 United States gallons=0.037037 cubic yard=0.000022957 acre-foot=28.317 liters.
 1 cubic yard=46,656 cubic inches=27 cubic feet=0.00061983 acre-foot=0.76456 cubic meter.
 1 acre-foot=325,851 United States gallons=43,560 cubic feet=1,613.333 cubic yards=1,233.49 cubic meters.
 1 cubic meter, sterc, or kiloliter=1,000,000 cubic centimeters=1,000 liters=61,023.4 cubic inches=264.17 United States gallons=35.3145 cubic feet=1.30794 cubic yards=0.000810708 acre-foot.

HYDRAULICS

1 United States gallon of water weighs 8.34 pounds avoirdupois.
 1 cubic foot of water weighs 62.5 pounds avoirdupois.
 1 second-foot=7.48 United States gallons per second=448.8 United States gallons per minute
 =28,929.9 United States gallons per hour=646,317 United States gallons per day.
 1 second-foot=60 cubic feet per minute=3,600 cubic feet per hour=86,400 cubic feet per day
 =31,536,000 cubic feet per year=0.000214 cubic mile per year.
 1 second-foot=0.9917 acre-inch per hour=1.983471 acre-feet per day=723.936342 acre-feet
 per year.
 1 second-foot=0.028317 cubic meter per second=1.699 cubic meters per minute=101.941 cubic
 meters per hour=2,446.58 cubic meters per day.
 1 second-foot for 1 year (365 days) will cover 1 square mile 1.1312 feet or 13.5744 inches deep.
 1 second-foot falling 10 feet=1.135 horsepower.
 100 United States gallons per minute=0.223 second-foot=0.442 acre-foot in one day.
 1 million gallons per day=1.55 second-foot=3.07 acre-feet per day=2.629 cubic meters per
 minute.
 1 million gallons per month=0.05525 second-foot for one 28-day month=0.05334 second-foot
 for one 29-day month=0.05157 second-foot for one 30-day month=0.04990 sec-
 ond-foot for one 31-day month.
 1,000,000,000 (1 United States billion) cubic feet=11,570 second-foot for one day=413 second-
 feet for one 28-day month=399 second-foot for one 29-day month=386 second-
 feet for one 30-day month=373 second-foot for one 31-day month.
 1 horsepower=1 second-foot falling 8.8 feet.
 1 horsepower=1 second-foot falling 11.0 feet, 80 percent efficiency.
 1 horsepower=5,694,120 foot-gallons per day=550 foot-pounds per second=33,000 foot-
 pounds per minute=1,980,000 foot-pounds per hour=2,545 British thermal units
 per hour=76 kilogrammeters per second=1.27 kilogrammeters per minute=
 746 watts.
 1.3405 horsepower=1 kilowatt.
 1 inch deep on 1 square mile=2,323,200 cubic feet=0.0737 second-foot for 1 year.
 1 foot deep (head of 1 foot)=0.434 pound pressure on 1 square inch.
 1 cubic meter per minute=0.5886 second-foot=4.403 United States gallons per second=
 1.1674 acre-feet per day.
 1 foot per second=0.68 mile per hour=1.097 kilometers per hour.
 Acceleration of gravity, $g=32.16$ feet per second.

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1938, and ending September 30, 1939. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, or as underground water, and this stored water passes off in the streams during the spring months. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore, the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a staff or chain gage, or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge.

Rating tables giving the discharge for any stage are computed from the rating curves which are constructed from the discharge measurements. The application of the daily gage height to these rating tables gives the daily discharge from which the monthly and yearly mean discharge is computed.

The data presented for each gaging station covered by this report comprise a description of the station, a table showing the daily discharge of the stream, a table of monthly and yearly discharge and run-off, and a summary table of run-off in second-feet per square mile, run-off depth in inches, precipitation, and per cent run-off to precipitation. For stations with insufficient base data to determine the daily discharge, the results of current-meter discharge measurements are published in the table of miscellaneous discharge measurements.

The description of the station gives, in addition to statements regarding location and type of gage, information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded discharges, accuracy of the records, and average discharge for the stations that have a record for ten or more years. The maximum discharge given under "Extremes" represents the crest discharge determined from records of stage by water-stage recorders, or in case of nonrecording gages it is determined from floodmarks or from graphs based on gage readings made once daily or more frequently.

The table of daily discharge gives, in general, the discharge in second-feet corresponding to the daily gage height, which may be the mean of two or more readings in the case of a nonrecording gage, or the mean daily gage height obtained from a water-stage recorder graph.

At stations on streams subject to sudden or rapid diurnal fluctuation, the discharge obtained from the rating table and the mean daily gage height may not be the true mean discharge for the day. If such stations are equipped with water-stage recorders, the mean daily discharge may be obtained by averaging discharge at regular intervals during the day or by using an instrument known as the discharge integrator, which has a setting to correspond with the rating curve of a station and determines the mean daily discharge from a continuous gage-height graph.

In the table of monthly discharge, the column headed "Maximum" gives the maximum daily discharge and not the discharge when the water surface was at crest height. Likewise, in the column headed "Minimum," the quantity given is the minimum daily discharge. The column headed "Mean" is the average flow in cubic feet per second during the month. On this average flow are based computations recorded in the remaining columns, which are defined on page 21.

ACCURACY OF FIELD DATA AND COMPUTED RECORDS

The accuracy of stream-flow data depends primarily (1) on the permanency of the stage-discharge relation and (2) on the accuracy of observation of stage, measurements of flow, and interpretation of records.

The station description gives a statement in regard to the general accuracy of the records. "Excellent" indicates that the records are accurate within 5 percent; "good" within 10 percent; "fair" within 15 percent; and "poor" within 20 percent or more.

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and run-off in inches may be subject to gross errors caused by the inclusion of large noncontributing districts in the measured drainage area.

The table of monthly discharge gives a general idea of the flow at the station. The table of daily discharge allows more detailed studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published.

COOPERATION

Financial assistance was rendered by the Corps of Engineers, U. S. Army, Pittsburgh, Pa., in the operation and maintenance of all gaging stations located in the Ohio River Basin excepting Dayton, Greenville, Nebraska, New Alexandria, Orangeville, Piney, Pymatuning Dam (Reservoir), Pymatuning Dam (Shenango River), Pymatuning Dam (Sugar Run), Saegerstown, Salisbury, and St. Charles. The city of Harrisburg rendered financial assistance in the establishment and operation of the Carsonville, Dauphin, and Manada Gap gaging stations in the Susquehanna River Basin. The stream-flow records for the Delaware River Basin stations at Port Jervis, Belvidere, Riegelsville, and Trenton are furnished by the United States Geological Survey offices at Albany, N. Y., and Trenton, N. J. Records for the Salisbury station in the Ohio River Basin and the Bedford Valley station in the Potomac River Basin are furnished by the United States Geological Survey office at Washington, D. C.

Acknowledgment is due the following agencies for equipment and assistance in the collection of records:

City of Lancaster, Pa., (Lancaster).
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 Hayt Engineering Corporation, Corning, N. Y., (Loyalsock).
 Panther Valley Water Co., Lansford, Pa., (Tamaqua).
 Pennsylvania Edison Co., Altoona, Pa., (Saxton).
 Pennsylvania Power and Light Co., Allentown, Pa., (Wilsonville).
 Philadelphia Electric Co., Philadelphia, Pa., (Harrisburg and Lancaster).
 Safe Harbor Water Power Corp., Baltimore, Md., (Marietta).
 Philadelphia Suburban Water Co., Bryn Mawr, Pa., (Langhorne).
 United Engineering and Foundry Co., Vandergrift, Pa., (Vandergrift).
 United States Engineer Office, Baltimore, Md., (Dalmatia, Gapsville,

Huntingdon, Marklesburg, Millerstown, Penns Creek, Shermansdale, and Wapwallopen).

United States Engineer Office, Philadelphia, Pa., (Bethlehem and Tannery).

United States Weather Bureau, Harrisburg, Pa., (Harrisburg, Mapleton Depot, Newport, Renovo, Sunbury, Towanda, Wilkes-Barre, and Williamsport).

United States Weather Bureau, Pittsburgh, Pa., (Beaver Falls, Franklin, and Seward).

Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., (Traf-ford).

West Penn Power Co., Pittsburgh, Pa., (Connellsville).

West Virginia Pulp and Paper Co., Williamsburg, Pa., (Williamsburg).

York Water Co., York, Pa., (York).

The Commonwealth of Pennsylvania is divided into six drainage basins: Delaware, Susquehanna, Potomac, Genesee, Erie, and Ohio. The hydrographic data in the following pages are divided into four groups corresponding to the basins in which the stations are located. There are no gaging stations in the Erie or Genesee Basins. The stations in each basin are shown in the following tables and their locations are indicated on the stream gaging map with reference numbers corresponding to those given in the tables.

GAGING STATIONS IN DELAWARE RIVER BASIN *

Station No.	Stream	Location
1	Delaware River	Port Jervis, N. Y.
2	Delaware River	Belvidere, N. J.
3	Delaware River	Riegelsville, N. J.
4	Delaware River	Trenton, N. J.
5	Lackawaxen River	Hawley
6	Wallenpaupack Creek	Wilsonville
7	Bushkill Creek	Shoemakers
8	Lehigh River	Tannery
9	Lehigh River	Bethlehem
10	Aquashicola Creek	Palmerton
11	Tohickon Creek	Pipersville
12	Neshaminy Creek	Langhorne
13	Schuylkill River	Pottstown
14	Schuylkill River	Philadelphia
15	Little Schuylkill River	Tamaqua
16	Perkiomen Creek	Graters Ford
17	Ridley Creek	Moylan
18	Chester Creek	Chester
19	Brandywine Creek	Chadds Ford

*For information available on each station, see description of station.

GAGING STATIONS IN SUSQUEHANNA RIVER BASIN *

Station No.	Stream	Location
1	North Branch of Susquehanna River	Towanda
2	North Branch of Susquehanna River	Wilkes-Barre
3	North Branch of Susquehanna River	Danville
4	Susquehanna River	Sunbury
5	Susquehanna River	Harrisburg
6	Susquehanna River	Marietta
7	Towanda Creek	Monroeton
8	Tunkhannock Creek	Dixon
9	Lackawanna River	Old Forge
10	Wapwallopen Creek	Wapwallopen
11	Fishing Creek	Bloomsburg
12	West Branch of Susquehanna River	Bower
13	West Branch of Susquehanna River	Renovo
14	West Branch of Susquehanna River	Williamsport
15	Clearfield Creek	Dimeling
16	Sinnemahoning Creek	Sinnemahoning
17	Driftwood Branch of Sinnemahoning Creek	Sterling Run
18	North Bald Eagle Creek	Beech Creek Station
19	Pine Creek	Cedar Run
20	Lycoming Creek	Trout Run
21	Loyalsock Creek	Loyalsock
22	Penn Creek	Penns Creek
23	Mahantango Creek East	Dalmatia
24	Frankstown Branch of Juniata River	Williamsburg
25	Juniata River	Mapleton Depot
26	Juniata River	Newport
27	Little Juniata River	Spruce Creek
28	Standing Stone Creek	Huntingdon
29	Raystown Branch of Juniata River	Saxton
30	Dunning Creek	Belden
31	Dunning Creek	Yount
32	Brush Creek	Gapsville
33	Great Trough Creek	Marklesburg
34	Aughwick Creek	Three Springs
35	Tuscarora Creek	Port Royal
36	Cocolamus Creek	Millerstown
37	Sherman Creek	Shermansdale
38	Clark Creek	Carsonville
39	Stony Creek	Dauphin
40	Conodoguinet Creek	Hogestown
41	Swatara Creek	Harper Tavern
42	Manada Creek	Manada Gap
43	West Conewago Creek	Manchester
44	Codorus Creek	Spring Grove
45	South Branch of Codorus Creek	York
46	Conestoga Creek	Lancaster

GAGING STATIONS IN POTOMAC RIVER BASIN *

Station No.	Stream	Location
1	Evitts Creek	Bedford Valley
2	Licking Creek	Sylvan

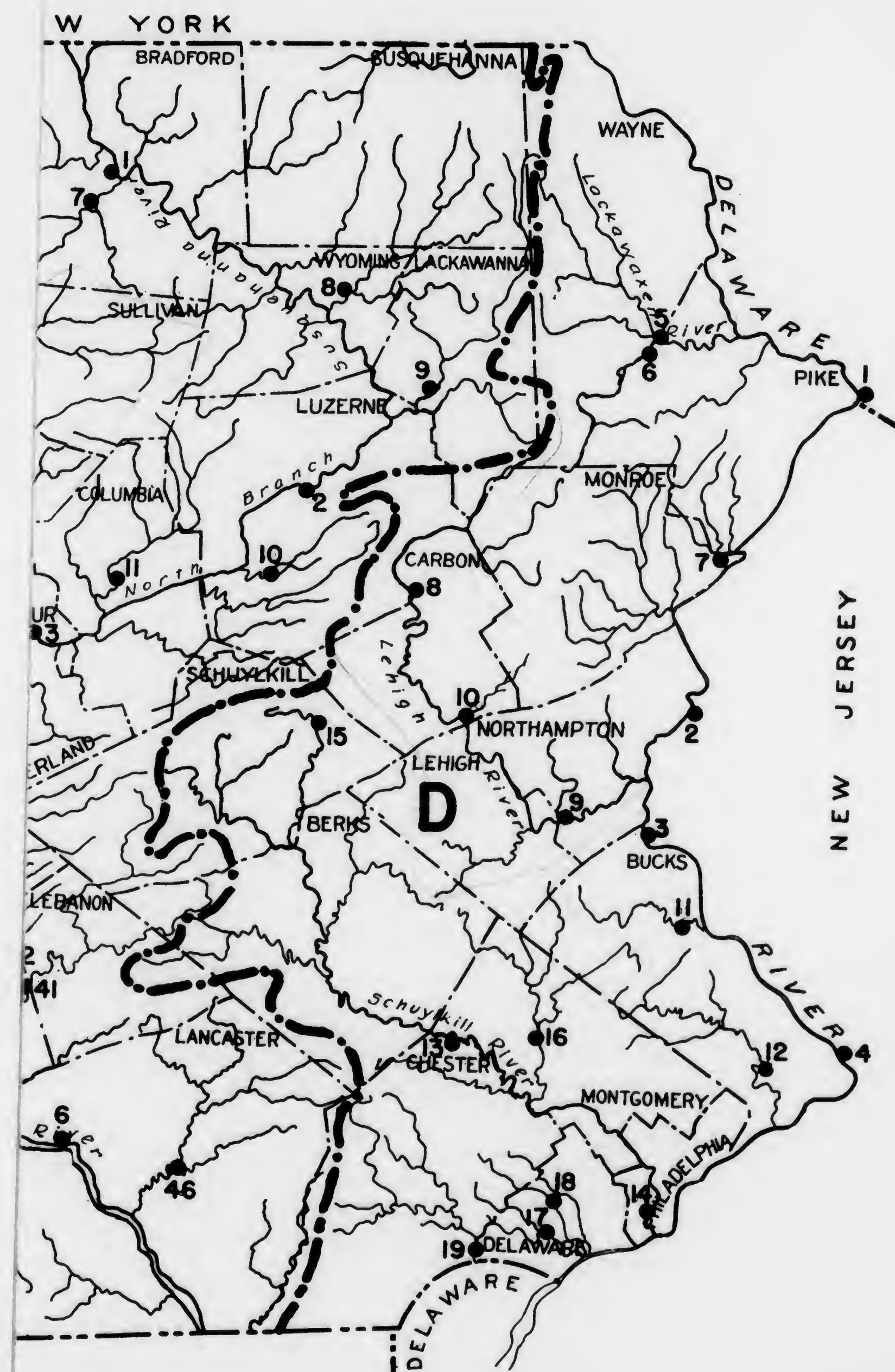
*For information available on each station, see description of station.

GAGING STATIONS IN OHIO RIVER BASIN *

Station No.	Stream	Location
1	Allegheny River	Larabee
2	Allegheny River	Eldred
3	Allegheny River	Kinzua
4	Allegheny River	Franklin
5	Allegheny River	Parkers Landing
6	Allegheny River	Kittanning
7	Allegheny River	Natrona
8	Ohio River	Sewickley
9	Brokenstraw Creek	Youngsville
10	Tionesta Creek	Lynch
11	Tionesta Creek	Nebraska
12	Tionesta Creek	Tionesta
13	Oil Creek	Rouseville
14	French Creek	Carters Corners
15	French Creek	Venango
16	French Creek	Saegerstown
17	French Creek	Utica
18	Sugar Creek	Sugarcreek
19	Clarion River	Cooksburg
20	Clarion River	Piney
21	Redbank Creek	Mayport
22	Redbank Creek	St. Charles
23	Mahoning Creek	Punxsutawney
24	Mahoning Creek	Dayton
25	Mahoning Creek	Mahoning Creek Dam
26	Crooked Creek	Idaho
27	Crooked Creek	Ford City
28	Stony Creek	Hollsopple
29	Stony Creek	Ferndale
30	Conemaugh River	Seward
31	Kiskiminetas River	Vandergrift
32	Little Conemaugh River	East Conemaugh
33	Blacklick Creek	Blacklick
34	Loyalhanna Creek	New Alexandria
35	Loyalhanna Creek	Loyalhanna Creek Dam
36	Monongahela River	Greensboro
37	Monongahela River	Charleroi
38	Monongahela River	Braddock
39	South Fork of Tenmile Creek	Jefferson
40	Youghiogheny River	Youghiogheny River Dam
41	Youghiogheny River	Connellsville
42	Youghiogheny River	Sutersville
43	Casselman River	Markleton
44	Big Piney Run	Salisbury
45	Laurel Hill Creek	Ursina
46	Turtle Creek	Trafford
47	Beaver River	Wampum
48	Beaver River	Beaver Falls
49	Pymatuning Reservoir	Pymatuning Dam
50	Shenango River	Pymatuning Dam
51	Shenango River	Sharpsville
52	Sugar Run	Pymatuning Dam
53	Little Shenango River	Greenville
54	Pymatuning Creek	Orangeville
55	Connoquenessing Creek	Hazen
56	Slippery Rock Creek	Wurtemburg

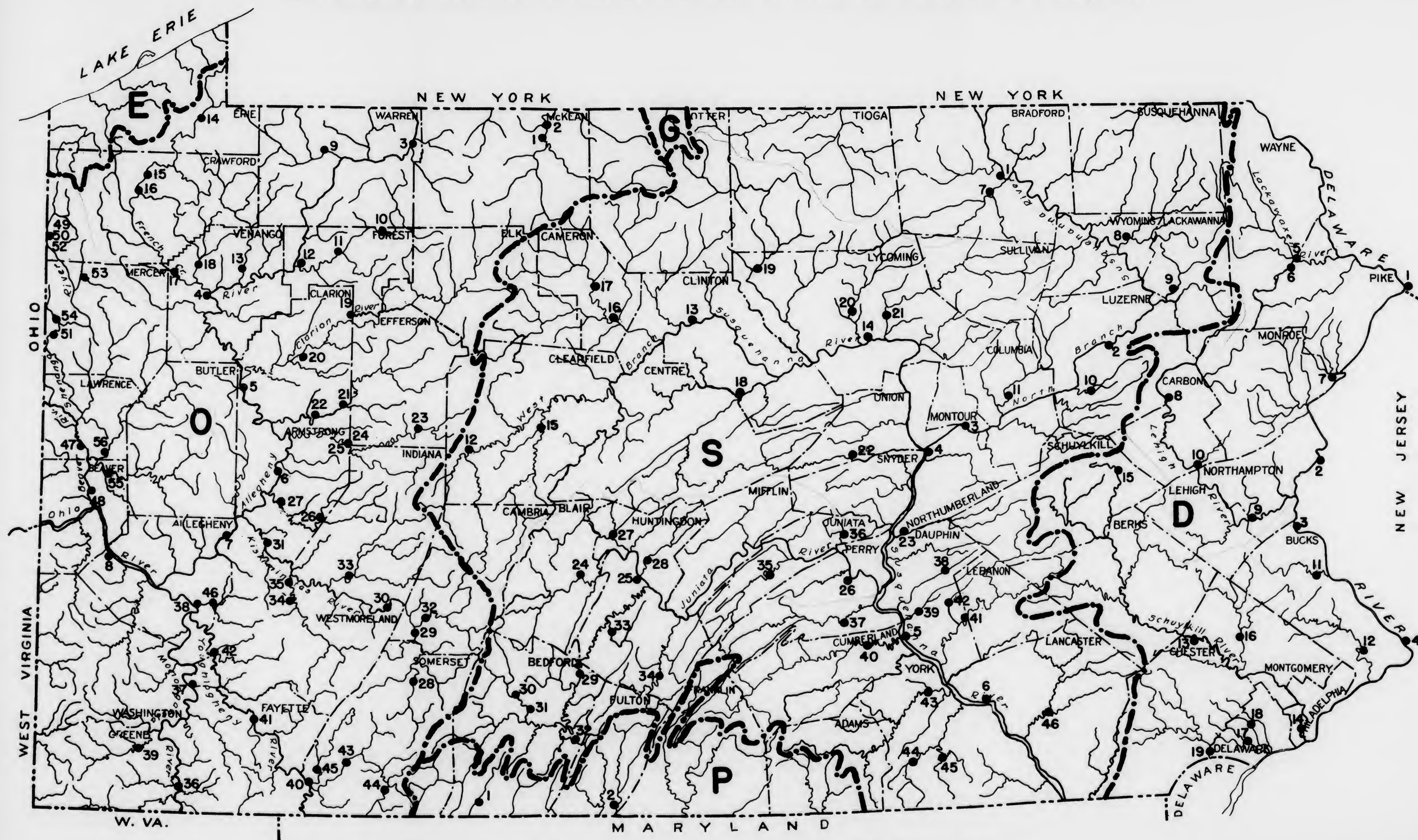
*For information available on each station, see description of station.

NG SEPT. 30, 1939



E ; O , OHIO .

MAP SHOWING LOCATION OF GAGING STATIONS FOR THE YEAR ENDING SEPT. 30, 1939



LEGEND TO DRAINAGE BASINS:- D, DELAWARE ; S, SUSQUEHANNA ; P, PATOMAC ; G, GENESEE ; E, ERIE ; O, OHIO.

GAGING-STATION RECORDS

DELAWARE RIVER BASIN

Delaware River at Port Jervis, N. Y.

Location.- Water-stage recorder, lat. 41°22'20", long. 74°41'50", near highway bridge at Port Jervis, Orange County, 1½ miles above mouth of Neversink River. Zero of gage is 415.35 feet above mean sea level (general adjustment of 1929).

Drainage area.- 3,076 square miles.

Records available.- October 1904 to September 1939.

Average discharge.- 35 years, 5,569 second-feet.

Extremes.- Maximum discharge during year, 55,600 second-feet Dec. 6 (gage height, 11.25 feet); minimum observed, 325 second-feet Sept. 25 (gage height, 0.95 foot); minimum daily discharge, 428 second-feet Sept. 5.

1904-39: Maximum discharge, 108,000 second-feet Mar. 18, 1936 (gage height, 17.55 feet), from rating curve extended above 35,000 second-feet; minimum, 175 second-feet Sept. 22, 23, 1908 (gage height, 0.60 foot); minimum daily discharge, 175 second-feet Sept. 22, 23, 1908.

Maximum stage known, 25.5 feet Mar. 8, 1904 (caused by ice jam); maximum discharge known, about 155,000 second-feet Oct. 10, 11, 1903, from rating curve extended above 35,000 second-feet.

Remarks.- Records excellent except those for periods of ice effect, Dec. 28 to Jan. 1, Jan. 18-20, 26-28 (computed on basis of gage heights, weather records, and seven discharge measurements), and those for July to September, all of which are good. Regulation from operation of power plants and from storage in Lake Wallenpaupack and in Toronto and Swinging Bridge Reservoirs (combined capacity, 12,200,000,000 cubic feet). Records furnished by U. S. Geological Survey, Albany, N.Y.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,700	2,460	5,010	2,450	3,980	17,200	17,900	7,250	2,380	1,710	1,250	883
2	4,860	2,890	4,510	2,450	3,750	17,900	20,000	6,900	2,180	1,230	1,120	886
3	4,680	2,700	3,810	2,790	3,900	14,100	23,000	6,230	1,890	1,530	925	836
4	4,280	3,000	6,430	3,350	4,040	12,000	18,000	5,660	2,130	1,400	1,140	428
5	3,760	2,730	15,500	2,780	3,740	11,500	14,900	5,250	1,580	1,180	764	1,070
6	3,840	2,690	41,600	3,460	3,620	13,500	13,500	4,920	1,630	1,030	838	1,350
7	3,890	4,420	41,100	6,830	3,630	19,300	19,000	4,350	1,830	955	994	1,220
8	3,000	4,790	23,800	7,700	3,220	15,700	18,000	4,080	1,580	1,290	1,570	1,490
9	2,770	4,730	17,400	5,990	2,930	12,700	14,700	4,440	1,580	1,150	1,510	1,440
10	2,720	5,520	19,100	5,600	3,200	11,200	13,000	4,730	1,910	955	1,010	1,020
11	2,750	5,250	26,200	5,820	3,060	9,100	11,700	4,560	1,950	1,510	1,240	664
12	2,480	4,650	18,800	6,230	2,660	7,880	13,400	4,410	1,630	1,730	1,170	1,330
13	2,580	4,140	14,900	5,500	2,890	7,950	14,900	3,610	2,320	1,760	830	1,360
14	3,220	4,290	12,100	4,670	3,290	7,470	13,400	2,920	2,360	1,420	962	954
15	2,950	5,060	10,000	4,150	5,080	6,960	12,800	3,020	1,730	1,530	1,460	676
16	2,400	4,670	8,030	3,860	18,200	6,600	14,300	3,410	1,780	757	1,500	518
17	2,110	4,420	7,340	4,090	19,200	6,880	13,000	3,260	1,990	632	1,420	564
18	2,660	4,060	6,940	3,900	13,200	6,130	12,300	3,240	2,050	1,290	1,470	574
19	2,760	3,670	6,430	3,700	11,400	5,490	12,700	2,870	1,460	1,190	1,360	1,170
20	2,850	7,870	5,780	3,400	12,000	5,440	14,000	2,440	1,940	634	627	1,110
21	3,000	11,100	5,300	2,890	33,200	5,400	13,800	2,220	2,250	1,230	806	1,330
22	2,830	9,160	4,670	2,640	25,500	5,030	12,500	2,910	2,160	1,030	1,360	1,340
23	2,350	7,810	4,140	2,710	17,700	4,850	13,500	4,280	2,160	437	1,360	999
24	2,340	6,930	3,770	2,970	13,300	4,600	12,400	3,880	1,520	454	1,430	565
25	3,820	6,080	3,690	2,770	10,500	6,720	11,300	3,540	1,190	1,340	3,490	547
26	4,360	5,490	3,200	2,500	9,680	14,300	10,500	3,020	981	1,310	2,230	1,120
27	3,520	5,020	3,330	2,350	12,300	24,300	9,730	2,640	1,090	1,550	1,290	1,410
28	3,720	5,050	3,000	2,300	15,700	26,800	9,630	2,460	1,270	1,540	1,010	1,580
29	3,340	4,860	2,600	2,290		26,200	8,990	2,410	1,080	1,670	1,400	1,320
30	2,710	4,940	2,500	3,330		19,400	7,400	2,080	1,660	1,080	1,320	1,820
31	2,760		2,500	4,150		19,900		2,230		1,000	1,280	

Month	Observed				Storage (Equivalent mean)	Adjusted for storage		
	Second- foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October.....	101,010	5,700	2,110	3,258	-615			
November.....	150,450	11,100	2,460	5,015	- 30			
December.....	333,480	41,600	2,500	10,760	+785			
Calendar year 1938	2,440,210	89,000	1,640	6,686	- 74		2.17	29.52
January.....	119,620	7,700	2,290	3,859	- 55			
February.....	264,870	33,200	2,660	9,460	+794			
March.....	371,500	26,800	4,600	11,980	+438			
April.....	414,250	23,000	7,400	13,810	+210			
May.....	119,220	7,250	2,080	3,846	-345			
June.....	53,261	2,380	981	1,775	-453			
July.....	37,524	1,760	437	1,210	-496			
August.....	40,136	3,490	627	1,295	-520			
September.....	31,574	1,820	428	1,052	-466			
Water year 1938-39	2,036,895	41,600	428	5,581	- 68		1.81	24.62

Delaware River at Belvidere, N. J.

Location.- Water-stage recorder, lat. 40°49'36", long. 75°05'02", at Belvidere, Warren County, just below mouth of Pequest River. Zero of gage is 226.43 feet above mean sea level (general adjustment of 1929).

Drainage area.- 4,542 square miles.

Records available.- October 1922 to September 1939.

Average discharge.- 17 years, 8,013 second-feet, adjusted for storage.

Extremes.- Maximum discharge during year, 81,000 second-feet Dec. 7 (gage height, 15.88 feet); minimum, 804 second-feet July 25, Sept. 19 (gage height, 2.32 feet).

1922-39: Maximum discharge, 179,000 second-feet Mar. 19, 1936 (gage height, 25.0 feet); minimum, that of July 25, Sept. 19, 1939.

Maximum stage known, 28.6 feet, from floodmark, Oct. 10, 1903 (discharge, 220,000 second-feet, from rating curve extended above 170,000 second-feet).

Remarks.- Records excellent. Flow regulated by storage in Lake Wallenpaupack and in Toronto and Swinging Bridge Reservoirs on Mongaup River. Last three columns of monthly table adjusted for effect of storage in Lake Wallenpaupack and in Toronto and Swinging Bridge Reservoirs. Records furnished by U. S. Geological Survey, Trenton, N. J.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	9,220	4,580	7,550	4,860	6,700	25,400	24,200	9,600	3,250	2,830	1,410	1,550	
2	7,910	4,320	7,200	5,000	6,060	26,600	24,200	9,800	3,250	2,340	1,590	1,180	
3	7,030	4,580	6,530	4,720	6,860	21,200	31,700	9,830	3,040	1,820	1,560	1,150	
4	6,860	4,320	9,820	5,000	9,220	17,600	26,000	8,270	2,730	2,050	1,870	1,090	
5	6,210	4,720	19,000	5,140	8,640	16,600	20,600	7,550	2,830	1,850	1,600	986	
6	5,900	4,860	53,500	7,460	7,730	17,600	18,600	7,030	2,340	1,660	1,400	1,080	
7	6,700	5,740	72,000	9,220	7,550	24,200	23,600	6,370	2,440	1,560	1,180	1,530	
8	5,740	7,380	43,400	12,300	7,200	22,400	25,400	5,740	2,440	1,420	1,410	1,510	
9	5,000	7,380	29,600	10,600	6,860	17,600	20,100	6,210	2,250	1,740	1,850	1,700	
10	4,720	7,380	26,600	9,410	6,530	16,100	17,100	7,030	2,250	1,530	1,840	1,720	
11	4,450	7,910	34,500	9,020	7,200	13,700	16,100	7,030	2,630	1,350	1,420	1,330	
12	4,450	7,200	29,600	9,410	6,860	11,500	17,100	6,530	2,730	1,760	1,450	1,530	
13	4,060	6,530	23,000	9,020	6,370	10,800	19,600	5,740	2,540	1,980	1,460	1,430	
14	4,320	6,210	19,100	8,270	6,700	11,000	17,600	4,860	3,580	1,930	1,500	1,580	
15	4,580	6,530	16,100	6,700	8,750	11,000	16,100	4,320	3,250	1,710	1,200	1,260	
16	4,190	6,860	13,200	6,060	21,000	11,500	17,600	4,720	2,630	1,780	1,740	1,000	
17	3,700	6,370	11,500	6,530	35,200	11,900	16,600	4,720	2,630	1,120	1,800	909	
18	3,470	6,210	11,000	6,370	22,400	11,500	16,100	4,450	2,630	1,050	1,700	845	
19	3,940	6,060	10,200	6,210	18,600	9,410	17,100	4,320	2,440	1,380	1,770	845	
20	4,190	7,550	9,600	5,590	17,600	8,640	19,600	3,940	2,160	1,510	2,160	1,210	
21	5,290	13,700	8,640	5,290	39,700	9,020	19,100	3,470	2,730	1,080	1,420	1,300	
22	5,290	12,800	8,090	4,720	39,000	8,460	17,100	4,190	2,730	1,410	1,150	1,520	
23	4,450	11,000	6,860	4,720	24,200	8,090	17,600	5,740	2,630	1,380	1,700	1,490	
24	4,450	10,200	6,370	4,190	19,100	7,910	16,600	6,530	2,440	970	1,710	1,310	
25	5,900	9,220	6,210	5,000	15,600	8,830	15,100	5,740	1,980	838	1,890	978	
26	7,030	8,460	6,210	4,450	13,700	15,100	14,100	5,000	1,600	1,330	3,940	853	
27	6,530	7,910	6,210	4,190	17,600	25,400	13,200	4,320	1,420	1,640	2,560	1,220	
28	5,900	7,550	5,900	4,720	23,600	31,700	13,200	3,820	1,550	2,020	1,720	1,490	
29	5,900	7,550	5,290	4,450		33,100	13,200	3,580	1,680	2,100	1,330	1,870	
30	5,140	7,200	4,860	4,720		26,000	10,800	3,360	1,820	2,050	1,600	1,650	
31	4,720		4,720	6,530		24,200		3,040		1,660	1,590		
Month				Observed				Adjusted for storage					
				Second-foot-days	Maximum	Minimum	Mean	Mean				Per square mile	Run-off in inches
October.....				167,240	9,220	3,470	5,395	4,779				1.05	1.21
November.....				218,280	13,700	4,320	7,276	7,246				1.60	1.78
December.....				522,360	72,000	4,720	16,850	17,640				3.88	4.47
Calendar year 1938				3,638,550	89,800	2,440	9,969	9,895				2.18	29.57
January.....				199,870	12,300	4,190	6,447	6,392				1.41	1.63
February.....				416,530	39,700	6,060	14,880	15,670				3.45	3.59
March.....				514,060	33,100	7,910	16,580	17,020				3.75	4.32
April.....				555,000	31,700	10,800	18,500	18,710				4.12	4.60
May.....				175,850	9,800	3,040	5,673	5,327				1.17	1.35
June.....				74,620	3,580	1,420	2,487	2,034				.448	.50
July.....				50,848	2,830	838	1,640	1,144				.252	.29
August.....				52,320	3,940	1,150	1,688	1,168				.267	.30
September.....				38,616	1,870	845	1,287	821				.181	.20
Water year 1938-39				2,985,594	72,000	838	8,180	8,111				1.79	24.24

Delaware River at Riegelsville, N. J.

Location.- Water-stage recorder, lat. 40°35'36", long. 75°11'17", at suspension bridge at Riegelsville, Warren County, 600 feet above mouth of Musconetcong River, flow of which is included in records after Oct. 1, 1931. Zero of gage is 125.12 feet above mean sea level (general adjustment of 1929).

Drainage area.- 6,344 square miles (including that of Musconetcong River).

Records available.- July 1906 to September 1939.

Average discharge.- 33 years, 10,990 second-feet (including flow of Musconetcong River after Oct. 1, 1931), adjusted for diversion and storage.

Extremes.- Maximum discharge during year, 98,800 second-feet Dec. 7 (gage height, 20.05 feet); minimum, not including flow in Delaware Division Canal, 1,230 second-feet Sept. 18 (gage height, 1.82 feet).

1906-39: Maximum discharge, 210,000 second-feet Mar. 19, 1936 (gage height, 32.45 feet), determined by slope-area method; minimum, not including flow in canal, 870 second-feet Sept. 20, 1908 (gage height, 1.55 feet).

Maximum stage known, 35.9 feet, from floodmarks, Oct. 10, 1903 (discharge, about 275,000 second-feet).

Remarks.- Records good except those above 40,000 second-feet and those for periods of faulty gage record, May 15-21, May 26 to June 9, June 17-20, 24-28, July 4, 7, 8, 10, 11, 18, 19, 22 (computed on basis of records for station at Trenton), all of which are fair. Last three columns of monthly table adjusted for diversion to Delaware Division Canal, and for effect of storage in Lake Wallenpaupack, Toronto and Swinging Bridge Reservoirs, and Lake Hopatcong. Records furnished by U. S. Geological Survey, Trenton, N. J.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12,800	7,010	10,600	7,810	10,200	39,400	32,800	14,400	4,500	4,580	2,450	2,370
2	11,300	6,540	10,200	8,140	10,200	38,800	33,400	14,000	5,000	4,450	2,540	2,040
3	9,850	6,540	9,500	7,810	12,000	32,800	41,000	12,800	4,700	3,550	2,370	1,820
4	9,500	6,540	15,300	7,650	19,000	27,200	36,600	12,000	4,600	3,000	3,000	1,800
5	8,810	6,700	29,000	7,980	16,000	25,200	30,200	11,300	4,200	3,320	2,650	1,740
6	8,470	7,980	71,000	10,900	14,400	26,200	27,700	10,600	4,200	3,000	2,520	1,650
7	9,850	9,850	91,800	14,400	13,600	31,800	34,400	9,850	3,700	2,700	2,080	2,200
8	9,150	10,900	60,100	16,900	12,800	31,300	36,100	8,810	3,800	2,500	2,220	2,410
9	7,650	11,300	42,800	15,600	12,000	25,700	30,700	8,810	3,800	2,860	2,560	2,410
10	7,170	10,900	38,800	13,600	11,700	23,300	26,200	10,600	4,020	2,600	2,770	2,540
11	6,850	11,300	45,700	13,200	13,600	20,900	23,700	10,200	4,450	2,200	2,410	2,200
12	6,700	10,600	42,200	13,200	14,000	18,200	24,700	9,500	4,860	2,680	2,140	1,890
13	6,380	9,850	33,900	12,800	12,400	17,700	27,700	8,810	4,860	3,180	2,260	1,880
14	6,230	9,150	28,200	11,700	12,400	17,300	25,700	7,980	5,920	3,550	2,480	2,350
15	6,850	9,150	23,700	9,850	13,600	17,700	23,300	7,000	6,080	3,050	2,180	2,140
16	6,540	9,500	20,000	9,150	32,300	19,500	23,300	7,200	4,860	3,000	2,480	1,800
17	5,920	9,150	16,900	9,500	45,100	20,500	23,300	7,000	4,000	2,480	2,080	1,500
18	5,460	8,810	16,400	9,500	34,400	19,000	23,700	6,700	4,000	1,900	2,610	1,380
19	5,920	8,810	15,200	9,150	28,700	16,000	24,200	6,400	4,000	1,800	2,650	1,400
20	6,230	11,700	14,400	8,140	26,200	14,400	27,200	6,000	3,700	2,390	3,280	1,530
21	7,810	16,900	13,200	8,140	42,500	14,400	27,200	5,800	4,430	2,040	3,350	1,890
22	7,810	17,300	12,000	7,650	49,300	14,000	25,200	7,170	4,580	1,800	2,700	2,220
23	7,170	15,200	10,600	6,380	33,900	13,200	24,200	8,470	4,290	2,200	2,680	2,390
24	7,010	14,000	9,850	6,540	26,700	12,800	23,300	9,500	3,800	1,870	2,740	2,200
25	8,810	12,800	9,500	7,650	22,300	13,200	21,400	8,470	3,200	1,680	2,790	1,870
26	9,850	11,700	9,500	6,080	20,500	19,000	20,000	7,500	2,800	1,790	4,430	1,640
27	9,500	11,300	10,600	6,380	26,700	29,700	19,000	6,500	2,600	2,500	4,150	1,750
28	8,470	10,900	10,200	6,380	33,400	38,800	19,000	6,000	2,400	3,050	2,980	2,370
29	8,470	10,600	8,470	6,540		41,000	18,600	5,500	3,120	3,350	2,500	2,880
30	7,980	10,200	8,140	7,980		35,500	16,000	5,200	3,080	3,100	2,550	3,000
31	7,330		8,140	12,000		32,800		4,800		3,030	2,410	
Month			Observed				Adjusted for storage and diversion					
			Second-foot-days	Maximum	Minimum	Mean						
October.....			247,840	12,800	5,460	7,995	7,407			1.17	1.35	
November.....			313,180	17,300	6,540	10,440	10,430			1.64	1.83	
December.....			745,900	91,800	8,140	24,060	24,850			3.92	4.52	
Calendar year 1938			5,082,830	103,000	3,880	13,930	13,890			2.19	29.74	
January.....			298,700	16,900	6,080	9,635	9,564			1.51	1.74	
February.....			619,900	49,300	10,200	22,140	22,970			3.62	3.77	
March.....			747,300	39,400	12,800	24,110	24,570			3.87	4.46	
April.....			789,800	41,000	16,000	26,330	26,570			4.19	4.68	
May.....			264,870	14,400	4,800	8,544	8,254			1.30	1.50	
June.....			123,430	6,080	2,400	4,114	3,723			.587	.65	
July.....			84,780	4,580	1,680	2,735	2,288			.561	.62	
August.....			83,030	4,450	2,080	2,678	2,219			.560	.60	
September.....			61,240	3,000	1,380	2,041	1,563			.246	.27	
Water year 1938-39			4,379,970	91,800	1,380	12,000	11,960			1.89	25.59	

Delaware River at Trenton, N. J.

Location.- Water-stage recorder, lat. 40°13'18", long. 74°46'38", 200 feet above Calhoun Street Bridge, at Trenton, Mercer County, half a mile above mouth of Assunpink Creek. Zero of gage is 7.77 feet above mean sea level (general adjustment of 1929).

Drainage area.- 6,796 square miles.

Records available.- February 1913 to September 1939.

Average discharge.- 26 years, 11,630 second-feet, adjusted for diversion and storage.

Extremes.- Maximum discharge during year, 99,500 second-feet Dec. 7 (gage height, 9.86 feet); minimum, 1,480 second-feet Sept. 11-21 (gage height, -0.25 foot). Flow in canal not included.

1913-39: Maximum discharge, 227,000 second-feet Mar. 19, 1936 (gage height, 16.66 feet); minimum, 1,220 second-feet Sept. 18, 1932. Flow in canals not included. Maximum stage known, 22.8 feet, from floodmark, caused by ice jam, Mar. 8, 1904 (discharge not determined).

Remarks.- Records good except those for periods of ice effect, Jan. 23, 24, Jan. 26 to Feb. 2, which were computed on basis of records for station at Riegelsville and are fair. Last three columns of monthly table adjusted for diversion to Delaware & Raritan Canal, and for effect of storage in Lake Wallenpaupack, in reservoirs on Mongaup River, and in Lake Hopatcong. Records furnished by U. S. Geological Survey, Trenton, N. J.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13,500	7,220	11,300	8,000	11,000	44,100	34,500	14,900	4,890	3,580	3,040	2,520
2	12,200	6,970	11,300	8,280	10,800	40,800	36,600	14,200	5,080	4,710	2,580	2,440
3	11,000	6,740	10,700	8,000	21,000	35,500	40,800	13,500	5,080	3,940	2,670	2,170
4	10,100	6,740	16,300	8,000	27,500	29,500	38,700	12,500	4,710	3,290	2,580	1,970
5	9,770	6,740	30,500	8,280	19,500	25,700	31,500	11,600	4,530	3,350	3,130	1,990
6	9,150	7,220	65,100	10,100	16,300	27,500	31,500	11,000	4,530	3,250	2,790	1,870
7	10,100	9,460	94,200	15,600	14,900	30,500	39,700	10,400	4,010	3,070	2,610	1,820
8	10,400	10,700	68,700	16,000	14,900	33,500	37,700	9,460	4,010	2,940	2,500	2,270
9	8,280	11,600	46,300	17,100	13,800	27,500	32,500	8,860	4,010	2,730	2,550	2,380
10	7,470	11,600	39,700	14,900	13,800	23,900	27,500	10,100	3,840	2,910	2,790	2,470
11	7,220	11,600	44,100	14,200	16,700	22,100	24,800	10,700	3,840	2,670	2,850	2,580
12	6,970	11,600	46,300	13,500	16,700	19,500	24,800	10,100	4,360	2,500	2,500	2,220
13	6,740	10,400	36,600	13,500	14,200	18,700	27,500	9,150	4,710	2,640	2,360	1,990
14	6,280	9,770	30,300	12,500	13,200	18,300	26,600	8,560	5,650	3,000	2,550	1,990
15	6,740	9,460	24,800	11,600	14,600	19,100	23,900	7,470	5,860	3,100	2,550	2,380
16	6,740	9,770	21,200	10,100	29,500	23,900	23,000	6,970	5,260	2,760	2,300	2,170
17	6,280	9,770	17,900	10,100	45,900	22,100	23,900	7,220	4,530	2,790	2,670	1,850
18	5,650	9,460	16,700	10,100	37,700	20,800	25,700	6,970	4,360	2,300	2,880	1,620
19	5,650	9,460	16,000	9,460	30,500	17,900	27,500	6,740	4,360	2,040	3,160	1,500
20	6,060	11,300	14,900	9,770	27,500	15,600	29,500	6,500	4,360	2,170	3,320	1,480
21	6,970	15,200	13,800	8,560	33,900	14,900	28,500	6,280	4,010	2,470	3,640	1,620
22	8,280	18,700	12,800	8,560	54,500	14,600	26,600	6,740	4,360	2,090	3,480	1,920
23	7,740	16,000	11,900	7,300	37,700	13,800	24,800	7,740	4,180	2,140	2,730	2,170
24	6,970	14,600	10,700	6,800	28,500	13,200	24,800	9,460	4,110	2,300	2,880	2,270
25	9,150	14,600	10,100	7,740	23,900	13,200	22,100	9,150	3,840	2,070	2,970	2,170
26	10,400	12,500	9,770	6,600	22,100	16,000	20,300	8,000	3,350	1,850	3,250	1,870
27	10,400	12,200	12,500	6,600	27,500	26,600	19,100	7,220	3,100	1,970	4,890	1,690
28	9,460	11,600	12,200	6,700	35,500	38,700	19,100	6,280	2,760	2,640	3,810	1,850
29	9,150	11,300	9,770	6,800	43,000	19,100	19,100	6,060	2,850	3,130	2,940	2,330
30	8,860	11,300	9,150	8,400	39,700	17,100	17,100	5,650	3,320	3,470	2,730	2,970
31	7,740		8,560	13,000	34,500			5,260		4,520	2,640	
Month		Observed					Adjusted for storage and diversion					
		Second-foot-days	Maximum	Minimum	Mean	Mean	Per square mile	Run-off in inches				
October.....		261,420	13,500	5,650	8,433							
November.....		325,580	18,700	6,740	10,850							
December.....		784,150	94,200	8,560	25,300							
Calendar year 1938		5,363,040	114,000	4,010	14,690							
January.....		316,150	17,100	6,600	10,200							
February.....		673,600	54,500	10,800	24,060							
March.....		784,700	44,100	13,200	25,310							
April.....		829,700	40,800	17,100	27,660							
May.....		274,740	14,900	5,260	8,863							
June.....		127,860	5,860	2,760	4,282							
July.....		88,390	4,710	1,850	2,851							
August.....		90,340	4,890	2,300	2,914							
September.....		62,540	2,970	1,480	2,085							
Water year 1938-39		4619,170	94,200	1,480	12,660							

Lackawaxen River at Hawley, Pa.

Location.- Water-stage recorder, lat. 41°28'30", long. 75°10'05", at Hawley, Wayne County, 300 feet below mouth of Wallenpaupack Creek and 1,000 feet below highway bridge and site of former gaging station. Zero of gage is 868.74 feet above mean sea level (preliminary levels of 1927).

Drainage area.- 290 square miles (does not include Lake Wallenpaupack drainage area of 228 square miles; flow from which is diverted to hydroelectric plant downstream).

Records available.- August 1938 to September 1939 in reports of U. S. Geological Survey; July 1908 to December 1919, August 1938 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.- Maximum discharge during year, 7,200 second-feet Feb. 20 (gage height, 6.71 feet); minimum, 25 second-feet Sept. 26 (gage height, 1.27 feet); minimum daily discharge, 29 second-feet Sept. 24, 25.

1908-19, 1938-39: Maximum discharge, 11,800 second-feet Sept. 22, 1938 (gage height, 7.90 feet), from rating curve extended above 6,000 second-feet; minimum daily discharge, 7 second-feet Aug. 20, 1911.

Maximum stage known, about 13.9 feet, from floodmarks, Mar. 18, 1936 (discharge not determined).

Remarks.- Records good except those for periods of ice effect, Nov. 26 to Dec. 3, Dec. 28 to Jan. 5, Jan. 14 to Feb. 15, which were determined from gage heights, weather records, one discharge measurement, and by comparison with records for stations in adjacent drainage areas, and are fair. Some regulation from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	286	134	280	250	600	1,990	1,380	597	159	68	62	50
2	257	122	270	240	500	1,370	2,850	466	138	81	48	44
3	231	119	260	240	520	980	1,900	413	122	56	47	39
4	218	119	928	220	720	895	1,280	368	110	51	65	381
5	218	126	2,040	210	640	1,100	1,010	331	107	54	81	197
6	209	355	6,620	590	520	2,140	1,060	310	94	51	68	161
7	218	357	2,550	1,070	460	1,970	1,720	286	81	52	58	98
8	193	286	1,440	895	420	1,120	1,090	267	70	46	50	76
9	189	331	1,120	640	390	929	887	271	77	46	43	66
10	174	300	2,380	583	380	838	767	492	76	45	54	60
11	159	253	2,260	714	370	640	767	352	78	42	56	54
12	156	235	1,380	563	360	556	1,400	281	88	38	46	54
13	142	222	1,010	442	370	604	1,080	239	91	39	41	58
14	145	305	798	400	380	583	879	235	88	38	82	58
15	134	272	618	370	1,000	504	1,090	218	91	35	66	53
16	125	235	492	350	2,820	590	997	205	88	32	47	50
17	125	218	473	360	1,720	604	798	197	78	31	43	45
18	113	218	436	330	1,280	499	744	189	70	37	40	42
19	101	274	407	320	1,090	439	1,040	174	64	43	57	39
20	105	698	368	290	3,330	425	1,040	166	66	50	66	40
21	152	479	341	270	4,160	390	798	152	90	51	72	38
22	156	390	331	280	1,980	374	904	322	93	50	56	37
23	128	346	320	270	1,220	372	791	451	61	46	44	34
24	150	331	352	270	980	666	647	331	62	40	795	29
25	330	279	305	270	767	1,710	577	248	58	38	634	29
26	231	320	286	260	803	2,670	530	205	54	37	224	33
27	182	310	310	240	1,280	2,250	504	178	53	54	125	85
28	159	300	350	230	1,390	2,250	744	162	51	51	91	137
29	152	290	320	230		1,720	604	159	51	91	68	110
30	159	280	300	320		1,450	523	145	60	101	61	244
31	145		270	600		1,930	134		86	58		

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	5,442	330	101	176	0.607	0.70
November.....	8,504	698	119	283	.976	1.09
December.....	28,615	5,620	260	923	3.18	3.67
Calendar year 1938						
January.....	12,317	1,070	210	397	1.37	1.58
February.....	30,460	4,160	360	1,088	3.75	3.90
March.....	34,558	2,670	372	1,115	3.84	4.43
April.....	30,401	2,850	504	1,013	3.49	3.88
May.....	8,544	597	134	276	.962	1.10
June.....	2,469	159	51	82.3	.284	.32
July.....	1,580	101	31	51.0	.176	.20
August.....	3,348	795	40	108	.372	.43
September.....	2,441	381	29	81.4	.281	.31
Water year 1938-39	168,669	5,620	29	462	1.59	21.61

Wallenpaupack Creek at Wilsonville, Pa.

Location.- At lower end of penstock of hydroelectric plant of Pennsylvania Power & Light Co. at Hawley, Wayne County, 1½ miles below dam that is at lat. 41°27'35", long. 75°11'05", at Wilsonville.

Drainage area.- 228 square miles.

Records available.- October 1918 to September 1921, June 1926 to September 1939 in reports of U. S. Geological Survey; July 1908 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 23 years (1913-22, 1925-39), 372 second-feet.

Remarks.- Records good. Discharge is computed from records of output of generators and represents flow through hydroelectric plant. No discharge over spillway during year. Flow regulated by storage in Lake Wallenpaupack. Last three columns of monthly table corrected for storage; no corrections made for evaporation. Negative values indicate that evaporation and seepage from lake exceeded natural flow. Records of hourly load, plant operations, and water-surface elevations in lake and tailrace furnished by Pennsylvania Power & Light Co.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	397	69	0	235	622	98	878	157	0	330	347
2	0	585	80	0	437	639	0	712	61	0	253	318
3	540	682	94	580	423	644	629	692	389	0	371	18
4	416	850	0	419	0	335	723	649	0	0	110	56
5	217	303	181	345	0	0	693	732	31	0	0	352
6	863	133	72	97	366	708	976	508	354	8.8	0	258
7	136	78	75	89	334	648	520	55	97	273	541	606
8	0	57	87	0	176	640	502	847	114	185	703	718
9	0	74	56	145	88	707	173	806	472	0	271	387
10	182	110	9.7	360	530	607	609	703	470	665	479	30
11	213	42	0	258	43	56	762	804	74	787	490	623
12	36	0	70	450	0	125	739	606	518	837	241	659
13	823	99	69	696	232	713	747	529	437	529	150	243
14	771	450	8.9	143	448	661	646	0	101	785	674	79
15	501	834	80	0	672	857	781	660	35	130	690	9.8
16	0	432	48	455	556	899	258	673	258	0	666	107
17	602	718	80	378	577	661	1,060	653	454	585	754	95
18	773	323	0	590	148	102	972	508	0	527	781	565
19	823	73	200	502	0	3.6	1,030	318	541	76	3.4	429
20	836	0	115	479	518	642	992	0	767	662	43	569
21	804	155	173	64	549	620	888	0	720	471	649	613
22	201	367	120	0	142	591	468	72	751	0	704	449
23	94	322	143	427	632	427	38	234	20	692	132	132
24	623	0	90	478	460	61	762	23	92	711	737	39
25	545	111	0	839	65	19	766	0	0	724	823	692
26	147	122	0	878	0	0	856	0	71	778	326	463
27	525	0	166	576	517	345	740	0	214	822	54	535
28	767	96	269	0	774	648	976	0	73	734	505	225
29	198	55	299	0	739	232	0	479	84	544	468	468
30	190	70	195	474	680	154	0	352	0	581	206	206
31	68	110	300	676	676	676	311	366	267	366	267	206
Month	Observed				Adjusted for storage							
	Second-foot-days	Maximum	Minimum	Mean	Mean	Per square mile	Run-off in inches					
October.....	11,955	863	0	386	59.5	0.261	0.30					
November.....	7,538	850	0	251	230	1.01	1.13					
December.....	2,959.6	299	0	95.5	844	3.70	4.27					
Calendar year 1938	143,584.0	1,050	0	393	337	1.48	20.02					
January.....	10,022	878	0	323	273	1.20	1.38					
February.....	8,922	774	0	319	930	4.08	4.25					
March.....	15,138.6	899	0	488	721	3.16	3.64					
April.....	18,790	1,060	0	626	701	3.07	3.42					
May.....	11,452.6	878	0	369	174	.763	.88					
June.....	8,311	767	0	277	31.0	.136	.15					
July.....	10,759.8	837	0	347	-68.6	-.301	-.35					
August.....	13,432.4	823	0	433	-21.1	-.093	-.11					
September.....	10,290.9	718	9.8	343	-43.5	-.191	-.21					
Water year 1938-39	129,571.8	1,060	0	355	315	1.38	18.75					

Bushkill Creek at Shoemakers, Pa.

Location.- Water-stage recorder, lat. 41°05'15", long. 75°02'20", at highway bridge three-quarters of a mile northwest of Shoemakers, Monroe County, and 2 miles southwest of Bushkill. Zero of gage is 421.13 feet above mean sea level (preliminary levels of 1921).

Drainage area.- 117 square miles.

Records available.- October 1918 to September 1920, October 1931 to September 1939 in reports of U. S. Geological Survey; September 1908 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 27 years (1908-16, 1920-39), 236 second-feet.

Extremes.- Maximum discharge during year, 2,170 second-feet Dec. 6 (gage height, 4.98 feet); minimum, 7.7 second-feet Sept. 27 (gage height, 0.97 foot).

1908-39: Maximum discharge, 3,910 second-feet July 24, 1920 (gage height, 7.2 feet, from graph based on gage readings), from rating curve extended above 1,600 second-feet; minimum, 4 second-feet Sept. 21, 26, 1932 (gage height, 0.90 foot).

Remarks.- Records fair except those for periods of ice effect, Nov. 26 to Dec. 3, Dec. 29 to Jan. 2, Jan. 15 to Feb. 14, which were determined from gage heights, weather records, one discharge measurement, and by comparison with records for stations in adjacent drainage areas, and are poor. Some regulation at low stages from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	215	122	180	160	300	844	508	276	149	146	33	12
2	188	119	180	160	250	714	714	254	154	107	27	12
3	172	114	210	169	280	609	658	239	130	71	32	12
4	160	109	651	157	400	563	574	221	114	59	34	12
5	149	124	905	149	370	580	518	208	105	54	31	14
6	152	225	1,970	382	330	633	552	195	93	53	26	16
7	175	232	1,490	426	300	569	676	185	81	51	23	15
8	149	208	1,160	383	280	486	557	179	77	46	21	12
9	140	232	968	334	260	445	492	191	73	41	21	12
10	127	218	996	316	250	426	450	257	66	39	21	12
11	122	211	891	308	240	369	426	208	71	36	20	12
12	114	198	753	288	230	346	508	175	122	32	19	12
13	109	188	646	265	240	351	445	157	91	31	19	12
14	105	188	569	250	270	329	392	157	130	30	21	13
15	102	175	492	230	582	321	373	146	109	29	19	12
16	98	160	435	220	940	387	351	135	87	25	16	12
17	93	169	396	220	786	392	329	130	71	24	16	11
18	91	179	364	220	760	338	338	122	64	24	15	10
19	87	215	342	210	682	304	486	114	59	23	16	9.5
20	100	325	312	200	721	292	486	109	77	22	38	9.0
21	211	280	284	190	786	272	396	112	75	21	39	9.0
22	166	250	257	190	702	265	401	160	59	21	30	8.5
23	140	239	250	180	580	254	378	195	54	20	24	8.0
24	182	242	254	180	540	272	351	242	50	19	20	8.0
25	235	235	221	170	471	355	334	201	44	19	20	8.0
26	198	220	201	160	530	450	312	172	41	20	19	8.0
27	175	210	232	150	664	445	300	152	40	24	18	7.7
28	154	200	201	140	702	580	360	143	38	33	16	9.5
29	146	190	190	140	569	346	132	38	30	30	15	14
30	137	190	180	160	535	312	119	100	36	36	14	17
31	130	170	300	300	563	107	107	47	14	14	14	17
Month		Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches					
October.....		4,622	235	87	146	1.25	1.44					
November.....		5,967	325	109	199	1.70	1.90					
December.....		16,350	1,970	170	527	4.50	5.19					
Calendar year 1938		95,822	1,970	42	263	2.25	30.45					
January.....		7,007	426	140	226	1.93	2.22					
February.....		13,446	940	230	480	4.10	4.27					
March.....		13,858	844	254	447	3.82	4.40					
April.....		13,303	714	500	443	3.79	4.23					
May.....		5,593	276	107	174	1.49	1.72					
June.....		2,462	154	38	82.1	.702	.78					
July.....		1,233	146	19	40.0	.342	.39					
August.....		697	39	14	22.5	.192	.22					
September.....		339.2	17	7.7	11.3	.097	.11					
Water year 1938-39		84,577.2	1,970	7.7	232	1.98	26.87					

Lehigh River at Tannery, Pa.

Location.- Water-stage recorder, lat. 41°02'25", long. 75°45'50", 600 feet above highway bridge at Tannery, Carbon County, and 1½ miles above mouth of Black Creek. Zero of gage is 1,041.80 feet above mean sea level (general adjustment of 1929).

Drainage area.- 322 square miles.

Records available.- October 1919 to September 1921, October 1928 to September 1939 in reports of U. S. Geological Survey; June 1914 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 20 years (1914-15, 1919-26, 1927-39), 672 second-feet.

Extremes.- Maximum discharge during year, 6,300 second-feet Dec. 6 (gage height, 7.88 feet); minimum, 31 second-feet July 25 (gage height, 1.17 feet); minimum daily discharge, 73 second-feet July 25.

1914-39: Maximum discharge, 21,800 second-feet Mar. 12, 1936 (gage height, 13.34 feet); minimum, 0.9 second-foot Sept. 28, 1936 (gage height, 1.07 feet); minimum daily discharge, 7.2 second-feet Aug. 5, 1936.

Remarks.- Records good except those for periods of ice effect, Nov. 26 to Dec. 3, Dec. 28-31, Jan. 14 to Feb. 3, which were determined from gage heights, weather records, one discharge measurement, and by comparison with records for station at Bethlehem, and are fair. Regulation from operation of power plants upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	402	313	520	484	400	2,290	1,360	632	258	304	130	103
2	357	297	500	471	370	1,840	1,880	572	244	229	126	103
3	330	288	520	452	600	1,490	1,700	524	229	203	164	103
4	314	278	1,640	422	1,310	1,300	1,450	484	222	182	196	108
5	299	322	2,760	422	1,200	1,310	1,290	445	210	172	192	124
6	325	1,200	5,670	1,010	1,030	1,530	1,320	422	207	172	159	139
7	456	1,130	3,610	1,230	844	1,450	1,580	398	189	162	147	124
8	402	916	2,420	1,120	777	1,190	1,320	387	189	153	144	116
9	352	956	1,880	946	687	1,100	1,210	393	192	159	144	77
10	325	868	2,710	861	617	1,180	1,070	433	182	144	138	111
11	309	748	2,670	827	793	1,230	988	427	232	135	130	131
12	299	660	2,060	744	836	1,080	1,620	381	520	130	127	165
13	278	592	1,700	640	827	988	1,320	354	339	124	141	121
14	269	592	1,400	580	695	886	1,110	365	439	135	165	106
15	254	522	1,210	500	2,220	827	1,080	344	365	132	159	106
16	249	476	1,080	450	3,170	929	1,020	323	299	130	135	99
17	235	476	972	450	2,290	946	963	314	258	130	127	94
18	226	482	904	420	1,800	836	1,020	304	233	124	122	90
19	222	679	844	370	1,580	744	1,280	294	226	122	124	90
20	226	1,310	777	310	2,170	719	1,270	290	229	95	135	92
21	328	1,050	711	300	2,420	679	1,100	294	229	114	166	94
22	340	884	695	350	1,930	671	1,190	366	214	127	144	90
23	309	788	886	300	1,530	640	1,120	477	207	111	127	90
24	438	724	714	300	1,320	752	963	416	196	108	130	158
25	660	624	572	320	1,130	1,060	852	387	192	73	132	199
26	529	660	531	260	1,370	1,450	802	323	189	95	130	192
27	456	620	650	240	1,930	1,360	777	299	189	111	122	193
28	463	600	600	230	1,980	1,660	785	276	179	127	122	234
29	444	560	560	240		1,530	760	263	162	122	116	230
30	379	540	520	280		1,450	687	250	301	129	78	328
31	336		500	450		1,530		233		136	98	
Month					Second-foot-days	Maximum	Minimum	Mean		Per square mile	Run-off in inches	
October.....					10,811	660	222	349		1.08	1.24	
November.....					20,155	1,310	278	672		2.09	2.33	
December.....					42,786	5,670	800	1,380		4.29	4.95	
Calendar year 1938.....					264,455	5,670	133	725		2.25	30.56	
January.....					15,979	1,230	230	515		1.60	1.84	
February.....					37,826	3,170	370	1,351		4.20	4.37	
March.....					36,647	2,290	640	1,182		3.67	4.23	
April.....					34,887	1,880	687	1,163		3.61	4.03	
May.....					11,670	632	233	376		1.17	1.35	
June.....					7,320	520	162	244		.758	.85	
July.....					4,401	304	73	142		.441	.51	
August.....					4,270	196	78	138		.429	.49	
September.....					4,010	328	77	134		.416	.46	
Water year 1938-39					230,762	5,670	73	632		1.96	26.65	

Lehigh River at Bethlehem, Pa.

Location.- Water-stage recorder, lat. 40°37'05", long. 75°21'55", 1,650 feet above Minsi Trail Bridge, at Bethlehem, Northampton County, and 2,400 feet below mouth of Monocacy Creek. Zero of gage is 208.60 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,280 square miles.

Records available.- September 1902 to February 1905, April 1909 to December 1913, October 1918 to September 1921, October 1928 to September 1939 in reports of U. S. Geological Survey; September 1902 to February 1905, April 1909 to September 1939 in reports of Pennsylvania Department of Forests and Waters. Records prior to October 1928 obtained at New Street Bridge, 4,130 feet upstream.

Average discharge.- 10 years (1929-39), 2,240 second-feet.

Extremes.- Maximum discharge during year, 25,900 second-feet Dec. 6 (gage height, 10.47 feet); minimum, 364 second-feet Sept. 23 (gage height, 2.01 feet); minimum daily discharge, 423 second-feet Sept. 23.

1902-5, 1909-39: Maximum discharge, 64,800 second-feet Aug. 24, 1933 (gage height, 18.70 feet); minimum, 160 second-feet Oct. 15, 1910 (gage height, 1.33 feet, former site and datum).

Maximum stage known, 24.9 feet, from floodmark, former site and datum, Feb. 28, 1902 (discharge, about 85,000 second-feet).

Extremes do not include flow in Lehigh Canal.

Remarks.- Records good. Regulation from power operations upstream. Daily and monthly records include flow in Lehigh Canal.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,000	1,450	2,200	1,910	2,690	10,000	4,450	2,550	1,180	1,300	664	530
2	1,840	1,380	2,070	1,890	2,530	7,820	6,380	2,370	1,220	995	605	506
3	1,740	1,350	1,940	1,870	3,550	6,280	6,450	2,220	1,140	882	613	514
4	1,640	1,340	6,250	1,780	6,620	5,340	5,490	2,110	1,110	764	764	505
5	1,580	1,340	9,190	1,700	4,880	5,030	4,880	2,010	1,110	812	763	596
6	1,740	2,760	22,800	3,280	4,310	5,640	5,250	1,890	1,050	813	673	614
7	2,400	3,620	16,000	3,660	3,910	5,180	7,120	1,830	1,000	824	622	567
8	1,830	2,980	10,200	3,410	3,530	4,450	5,800	1,780	984	760	613	549
9	1,630	3,100	7,820	3,060	3,290	4,180	5,180	1,780	996	712	595	522
10	1,570	2,860	9,110	2,820	3,270	3,910	4,590	2,200	985	719	596	516
11	1,450	2,620	9,440	2,760	4,450	3,780	4,180	1,920	995	669	566	539
12	1,410	2,400	7,820	2,550	4,590	3,780	5,180	1,730	1,230	660	531	513
13	1,370	2,310	6,450	2,370	4,040	4,180	4,590	1,620	1,390	651	569	540
14	1,340	2,260	5,490	2,260	3,780	3,780	4,040	1,680	1,460	711	663	560
15	1,260	2,100	4,590	2,170	4,860	3,910	3,780	1,620	1,430	653	673	532
16	1,260	1,940	3,910	1,980	12,000	4,880	3,530	1,520	1,180	605	605	569
17	1,230	1,900	3,660	2,100	8,180	5,180	3,530	1,470	1,050	641	576	471
18	1,190	1,900	3,410	1,960	6,780	4,590	3,910	1,440	995	603	567	488
19	1,170	2,030	3,200	1,840	5,800	3,910	4,450	1,390	1,020	585	697	444
20	1,240	3,910	2,910	1,580	5,640	3,660	4,590	1,320	1,050	585	798	473
21	1,690	3,360	2,690	1,700	6,450	3,410	4,180	1,360	1,030	565	1,250	474
22	1,500	2,980	2,550	1,810	5,640	3,240	4,310	2,180	937	530	958	471
23	1,340	2,870	2,260	1,400	4,450	3,060	4,180	2,200	905	548	743	436
24	1,580	2,630	2,240	1,580	4,040	2,990	3,660	1,860	851	633	663	456
25	2,280	2,520	2,200	1,700	3,660	3,270	3,410	1,680	829	602	643	481
26	1,990	2,310	2,060	1,240	4,280	3,660	3,180	1,550	839	563	625	500
27	1,800	2,410	2,900	1,360	6,780	3,910	3,110	1,440	808	623	588	564
28	1,740	2,310	2,570	1,270	7,000	4,740	3,110	1,400	819	651	616	558
29	1,680	2,200	1,980	1,430	4,740	2,880	1,370	1,019	755	586	586	621
30	1,620	2,200	2,050	2,260	4,450	2,670	1,270	1,060	666	568	568	718
31	1,540		1,940	3,780		5,030		1,220	693	540		
Month						Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches	
October.....						49,650	2,400	1,170	1,602	1.25	1.44	
November.....						71,340	3,910	1,340	2,378	1.86	2.08	
December.....						163,900	22,800	1,940	5,287	4.13	4.76	
Calendar year 1938						1,039,238	22,800	801	2,847	2.22	30.19	
January.....						66,480	3,780	1,240	2,145	1.68	1.94	
February.....						141,000	12,000	2,530	5,036	3.93	4.09	
March.....						141,980	10,000	2,990	4,580	3.58	4.13	
April.....						132,060	7,120	2,670	4,402	3.44	3.84	
May.....						53,980	2,550	1,220	1,741	1.36	1.57	
June.....						31,472	1,460	808	1,049	.820	.91	
July.....						21,773	1,300	530	702	.548	.63	
August.....						20,633	1,250	531	662	.517	.60	
September.....						15,827	718	436	528	.412	.46	
Water year 1938-39						909,995	22,800	436	2,493	1.95	26.45	

Tohickon Creek near Pipersville, Pa.

Location.- Water-stage recorder, lat. 40°26'00", long. 75°07'00", at highway bridge 1½ miles northeast of Pipersville, Bucks County, and 4½ miles above mouth. Zero of gage is 258.43 feet above mean sea level (preliminary levels of 1929).

Drainage area.- 97.4 square miles.

Records available.- July 1935 to September 1939.

Extremes.- Maximum discharge during year, 7,020 second-feet July 30 (gage height, 7.60 feet), from rating curve extended above 3,600 second-feet; minimum, 0.5 second-foot Sept. 30 (gage height, 0.52 foot); minimum daily discharge, 0.7 second-foot Sept. 25, 1935-39: Maximum discharge, 11,000 second-feet Sept. 21, 1938 (gage height, 9.11 feet), from rating curve extended above 3,600 second-feet; minimum, that of Sept. 30, 1939.

Remarks.-Records fair except those for periods of ice effect, Nov. 26 to Dec. 4, Dec. 22-26, Jan. 15-30, which were determined from gage heights, weather records, and by comparison with records for stations in adjacent drainage areas, and are poor. Regulation at low stages from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	70	46	72	461	1,330	224	57	8.0	5.3	21	12
2	23	57	42	59	290	306	1,200	51	8.2	1.8	16	6.2
3	21	49	40	59	1,290	173	340	45	4.8	4.7	10	1.8
4	18	47	1,300	58	1,990	135	173	40	1.2	1.7	6.1	8.6
5	16	44	601	55	454	268	120	36	6.5	5.6	6.5	5.8
6	22	48	2,560	775	248	529	1,440	32	2.7	4.4	4.6	4.1
7	50	51	473	383	332	279	1,650	28	3.4	3.6	7.3	5.0
8	59	47	232	195	419	136	320	25	4.2	4.1	33	6.4
9	42	59	202	132	377	111	192	22	2.2	1.4	18	3.5
10	32	63	404	145	591	100	146	20	4.4	5.1	15	1.7
11	27	56	266	170	1,290	82	133	22	1.1	4.4	12	3.9
12	22	46	185	109	401	82	401	20	3.3	3.2	8.3	1.6
13	20	41	166	75	212	160	181	18	3.4	3.1	3.3	6.3
14	16	40	120	66	176	419	111	17	64	3.4	14	1.5
15	17	37	93	58	803	802	98	17	36	2.9	7.6	5.8
16	13	34	82	50	979	1,850	88	15	21	1.1	5.0	1.3
17	15	34	70	47	218	326	128	15	15	3.4	5.6	1.0
18	14	33	70	44	170	173	782	14	41	4.1	5.0	2.7
19	14	58	72	41	166	122	631	14	81	1.3	22	2.7
20	11	234	68	37	163	106	510	11	70	2.1	66	1.0
21	30	162	58	34	140	94	200	6.9	53	1.5	40	3.9
22	46	97	54	32	122	88	135	57	35	1.0	28	1.0
23	39	83	50	32	91	88	116	72	23	.9	20	3.1
24	100	80	49	31	86	81	92	68	17	1.0	14	1.0
25	355	72	48	31	80	74	79	51	7.7	6.8	96	.7
26	144	64	48	30	562	69	72	29	12	4.8	109	4.6
27	86	58	531	29	667	64	74	20	7.2	2.3	41	.9
28	86	54	231	29	1,510	472	78	14	5.5	6.6	22	3.4
29	153	50	206	30	280	67	14	5.6	4.6	16	3.2	3.2
30	132	47	103	800	553	59	8.7	5.0	613	16	1.1	1.1
31	92	76	1,400		553		11		47	14		
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				1,740	355	11	56.1	0.576	0.66			
November.....				1,915	234	33	63.8	.655	.73			
December.....				8,546	2,560	40	276	2.83	3.26			
Calendar year 1938				55,431.9	5,430	2.0	152	1.56	21.16			
January.....				5,106	1,400	29	165	1.69	1.95			
February.....				14,288	1,990	80	510	5.24	5.46			
March.....				9,905	1,850	64	320	3.29	3.79			
April.....				9,840	1,650	59	328	3.37	3.76			
May.....				870.6	72	6.9	28.1	.288	.33			
June.....				552.4	81	1.1	18.4	.189	.21			
July.....				756.2	613	.9	24.4	.251	.29			
August.....				702.3	109	3.3	22.7	.233	.27			
September.....				105.8	12	.7	3.53	.036	.04			
Water year 1938-39				54,327.3	2,560	.7	149	1.53	20.75			

Neshaminy Creek near Langhorne, Pa.

Location.- Water-stage recorder, lat. 40°10'25", long. 74°57'30", at bridge on State Highway 213 half a mile below mouth of Mill Creek and 1.7 miles west of Langhorne Bucks County. Zero of gage is 40.57 feet above mean sea level (preliminary levels of 1935).

Drainage area.- 210 square miles.

Records available.- October 1934 to September 1939.

Extremes.- Maximum discharge during year, 11,800 second-feet Feb. 4 (gage height, 11.25 feet), from rating curve extended on basis of contracted-opening determination; minimum, 7.0 second-feet Sept. 26 (gage height, 0.59 foot); minimum daily discharge, 7.1 second-feet Sept. 24.

1934-39: Maximum discharge, 24,800 second-feet July 23, 1938 (gage height, 15.94 feet), from rating curve extended on basis of contracted-opening determination; minimum, 6.0 second-feet Sept. 24, 28, 1937; minimum daily discharge, that of Sept. 24, 1939.

Remarks.-Records good except those prior to Feb. 3, which are fair. Discharge for periods of ice effect, Nov. 24 to Dec. 3, Jan. 14-30, determined from gage heights, weather records, and by comparison with records for stations in adjacent drainage areas. Regulation from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	150	129	80	210	704	1,910	505	244	61	78	97	42
2	136	122	80	218	570	699	1,530	222	56	47	36	33
3	125	109	150	210	4,900	530	638	207	56	40	27	27
4	119	102	2,670	192	4,300	470	475	196	54	31	20	24
5	109	112	1,750	174	970	550	405	181	58	34	21	23
6	139	102	4,840	474	694	858	1,980	171	52	32	12	21
7	229	102	816	400	796	634	3,680	164	47	30	17	22
8	174	96	545	263	934	414	770	150	45	29	17	20
9	132	106	480	222	666	392	622	164	45	28	19	21
10	116	106	774	210	818	370	520	174	43	32	20	16
11	109	96	539	263	1,800	327	470	146	43	29	18	15
12	102	87	410	218	760	400	611	139	45	27	16	18
13	93	82	396	189	560	940	441	122	51	28	18	18
14	90	90	336	165	495	872	370	125	341	31	15	14
15	90	82	295	150	959	626	348	122	162	27	12	15
16	87	79	256	135	1,720	1,560	327	109	76	27	13	14
17	84	76	252	125	545	650	344	102	56	25	16	12
18	82	79	252	120	500	480	806	96	94	21	19	9.9
19	82	85	240	110	475	414	1,770	96	169	19	502	11
20	82	202	225	105	450	379	1,170	90	125	20	546	9.8
21	116	190	207	100	405	357	550	116	106	18	136	10
22	112	119	203	97	379	332	450	184	76	19	70	9.5
23	90	109	164	96	327	315	387	213	58	17	44	8.8
24	96	100	189	94	295	295	340	199	49	18	32	7.1
25	219	96	174	92	299	291	315	132	44	18	28	7.5
26	156	92	160	90	1,200	327	319	99	43	17	24	9.0
27	116	88	1,600	88	1,230	283	315	90	42	18	24	10
28	116	86	503	88	2,320	798	382	82	38	25	25	12
29	188	84	287	93		494	287	76	38	29	22	11
30	225	82	271	2,900		898	260	65	83	35	99	11
31	156		225	2,940		1,050		63		173	75	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				3,920	229	82	126	0.600	0.69			
November.....				3,090	202	76	103	.490	.55			
December.....				19,369	4,840	80	625	2.98	3.44			
Calendar year 1938				133,238	12,300	31	365	1.74	23.62			
January.....				10,831	2,940	88	349	1.66	1.91			
February.....				30,071	4,900	295	1,074	5.11	5.32			
March.....				18,915	1,910	283	610	2.90	3.34			
April.....				21,387	3,680	260	713	3.40	3.79			
May.....				4,339	244	63	140	.667	.77			
June.....				2,256	341	38	75.2	.358	.40			
July.....				1,022	173	17	33.0	.157	.18			
August.....				2,040	546	12	65.8	.313	.36			
September.....				481.6	42	7.1	16.1	.077	.09			
Water year 1938-39				117,721.6	4,900	7.1	323	1.54	20.84			

Schuylkill River at Pottstown, Pa.

Location.- Water-stage recorder, lat. 40°14'30", long. 75°39'05", at Hanover Street Bridge, at Pottstown, Montgomery County, a third of a mile below mouth of Manatawny Creek. Zero of gage is 117.81 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.- 1,147 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; August 1927 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 12 years, 1,839 second-feet.

Extremes.- Maximum discharge during year, 18,900 second-feet Dec. 6 (gage height, 10.86 feet); minimum, 248 second-feet Sept. 20 (gage height, 0.95 foot); minimum daily discharge, 281 second-feet Sept. 25.

1927-39: Maximum discharge, 44,200 second-feet Aug. 24, 1933 (gage height, 19.2 feet), from rating curve extended above 19,000 second-feet; minimum, 87 second-feet Aug. 13, 1930 (gage height, 0.43 foot); minimum daily discharge, 175 second-feet Sept. 19, 1932.

Maximum stage known, about 21.0 feet Feb. 28, 1902 (discharge, 50,000 second-feet), from rating curve extended above 19,000 second-feet.

Remarks.- Records good. Regulation at low stages from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,510	1,090	1,440	1,540	4,300	8,760	3,060	2,110	734	1,760	559	446
2	1,370	1,040	1,480	1,500	3,360	6,660	4,220	2,440	717	717	446	432
3	1,260	1,010	1,390	1,480	6,020	5,160	4,640	2,370	734	520	390	411
4	918	971	4,010	1,440	9,660	4,470	4,140	2,240	708	498	2,890	418
5	876	971	6,960	1,390	6,660	4,220	3,580	2,180	708	498	1,440	567
6	987	1,330	17,200	1,900	5,160	4,380	4,630	2,110	666	543	785	591
7	1,750	1,750	12,300	2,710	4,810	3,900	6,660	1,980	624	567	615	432
8	1,360	1,640	7,470	2,240	4,300	3,210	4,980	1,920	615	490	535	404
9	1,120	1,750	5,620	2,110	3,740	3,060	4,380	1,860	632	446	528	384
10	1,060	1,810	6,090	2,110	3,740	2,920	3,900	1,980	615	439	482	370
11	1,010	1,640	5,800	2,040	4,980	2,710	3,510	1,540	599	439	439	358
12	971	1,580	4,980	1,860	4,980	2,710	4,060	1,400	649	404	411	344
13	935	1,530	4,220	1,740	4,640	3,580	3,440	1,320	749	384	390	390
14	918	1,530	3,580	1,680	4,140	3,660	2,920	1,350	1,010	468	2,160	377
15	910	1,400	3,140	1,620	4,500	3,660	2,780	1,310	951	439	1,280	377
16	867	1,380	2,710	1,500	6,660	4,300	2,710	1,130	717	384	760	344
17	834	1,170	2,440	1,520	5,520	4,220	2,850	1,090	666	338	632	320
18	818	1,100	2,370	1,470	4,640	3,980	3,980	1,090	894	338	559	292
19	818	1,130	2,180	1,390	4,300	3,510	3,580	1,100	742	351	1,380	298
20	801	2,190	2,040	1,250	3,820	3,210	3,660	1,080	751	351	2,060	292
21	1,230	1,930	1,960	1,310	3,510	2,990	3,360	1,080	742	351	1,420	358
22	1,100	1,750	1,800	1,340	3,140	2,710	3,360	1,220	632	325	1,680	325
23	910	1,700	1,620	1,130	2,710	2,570	3,280	1,390	599	320	1,020	303
24	1,060	1,640	1,560	1,200	2,500	2,370	2,850	1,140	575	303	812	292
25	1,750	1,490	1,500	1,310	2,370	2,300	2,710	1,020	551	308	768	281
26	1,530	1,580	1,460	1,100	3,060	2,240	2,570	951	475	300	700	286
27	1,380	1,530	2,370	1,070	4,470	2,110	2,570	884	505	621	624	286
28	1,340	1,480	2,440	1,100	5,860	2,710	2,370	848	468	950	559	292
29	1,310	1,410	1,800	1,060	2,780	2,300	848	505	567	460	298	298
30	1,230	1,400	1,740	3,120	2,780	2,180	768	564	855	475	449	449
31	1,140		1,680	6,080		3,440		768		1,060	460	
Month					Second-foot-days	Maximum	Minimum	Mean		Per square mile	Run-off in inches	
October.....					35,073	1,750	801	1,131		0.986	1.14	
November.....					43,922	2,190	971	1,464		1.28	1.43	
December.....					117,250	17,200	1,390	3,782		3.30	3.80	
Calendar year 1938.....					723,934	17,200	612	1,983		1.73	23.47	
January.....					54,310	6,080	1,060	1,752		1.53	1.76	
February.....					127,550	9,660	2,370	4,555		3.97	4.13	
March.....					111,280	8,760	2,110	3,590		3.13	3.61	
April.....					105,230	6,660	2,180	3,508		3.06	3.41	
May.....					44,517	2,440	768	1,436		1.25	1.44	
June.....					20,097	1,010	468	670		.584	.65	
July.....					16,334	1,760	300	527		.459	.53	
August.....					27,719	2,890	390	894		.779	.90	
September.....					10,977	591	281	366		.319	.36	
Water year 1938-39.....					714,259	17,200	281	1,957		1.71	23.16	

Schuylkill River at Philadelphia, Pa.

Location.- Water-stage recorder, lat. 39°58'00", long. 75°11'20", just above Fairmount Dam, at Philadelphia, Philadelphia County. Zero of gage is at 0.00 foot elevation, city of Philadelphia datum, or 5.23 feet above mean sea level, Sandy Hook datum.

Drainage area.- 1,893 square miles.

Records available.- January 1898 to December 1912, September 1931 to September 1939 in reports of U. S. Geological Survey; January 1903 to December 1912, September 1931 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 17 years (1903-12, 1931-39), 2,634 second-feet.

Extremes.- Maximum discharge during year, 42,400 second-feet Feb. 3 (gage height, 11.08 feet), from rating curve extended above 20,000 second-feet; minimum, 7.0 second-feet July 21, Sept. 18 (gage height, 5.45 feet); minimum daily discharge, 138 second-feet Sept. 24.

1898-1912, 1931-39: Maximum discharge, about 92,000 second-feet Mar. 1, 1902 (gage height, about 14.8 feet); no flow over dam at times; minimum daily discharge, 38 second-feet Sept. 20, 1932.

Maximum stage known, about 17.0 feet Oct. 4, 1869 (discharge, about 127,000 second-feet).

Remarks.- Records good. Regulation from storage reservoir upstream. Water supply for city of Philadelphia diverted above station not included in records except in last three columns of monthly table. Record of diversion furnished by city of Philadelphia.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,040	1,490	2,350	2,290	7,780	16,700	5,300	2,930	760	1,170	962	444
2	1,850	1,370	2,450	2,240	5,940	10,200	7,710	2,870	728	1,280	480	394
3	1,670	1,370	2,190	2,140	16,200	8,020	7,420	3,090	793	668	376	342
4	1,510	1,210	8,890	1,990	22,400	6,820	6,290	2,870	728	478	584	367
5	1,100	1,290	11,200	1,890	11,200	6,460	5,530	2,760	793	490	3,160	411
6	1,290	1,330	25,200	3,240	8,200	7,660	7,260	2,610	728	528	1,080	512
7	2,290	1,740	17,100	4,440	7,780	6,760	18,200	2,450	555	509	670	500
8	2,500	2,140	10,500	3,640	7,840	5,180	8,560	2,290	571	583	604	388
9	1,800	2,040	8,080	3,250	6,460	4,660	7,120	2,190	644	439	588	314
10	1,530	2,190	8,860	3,030	6,400	4,440	6,170	2,240	642	516	472	247
11	1,290	2,090	8,680	3,250	10,700	4,150	5,530	2,190	542	451	362	286
12	1,210	1,990	7,180	2,870	8,380	4,150	6,290	1,800	748	385	328	228
13	1,250	1,890	6,460	2,550	7,060	5,410	5,880	1,670	749	322	268	247
14	1,140	1,940	5,470	2,450	6,460	6,820	4,660	1,620	3,960	394	578	326
15	1,100	1,800	4,780	2,240	6,830	5,820	4,380	1,670	1,540	474	2,550	280
16	1,060	1,580	4,100	2,090	13,000	8,590	4,440	1,530	1,040	380	1,140	270
17	995	1,580	3,090	2,090	8,580	6,760	4,380	1,530	710	344	664	252
18	1,030	1,410	3,420	2,090	7,120	6,050	3,780	1,250	1,150	296	460	233
19	995	1,330	3,510	1,940	6,640	5,410	6,940	1,250	1,740	212	3,070	177
20	925	2,210	3,030	1,620	6,550	4,840	7,120	1,180	1,050	254	5,440	169
21	1,270	3,090	2,760	1,530	5,300	4,490	5,590	1,330	1,140	286	2,820	176
22	1,620	2,350	2,550	1,830	4,950	4,150	5,120	1,710	855	232	2,090	241
23	1,330	2,140	2,350	1,260	4,380	3,920	5,120	3,630	684	233	1,490	240
24	1,220	2,090	2,140	1,450	3,700	3,700	4,440	1,760	632	216	995	138
25	2,520	2,240	2,140	1,460	3,470	3,420	3,870	1,530	546	186	1,170	228
26	2,500	1,890	2,040	1,400	5,000	3,420	3,870	1,250	532	176	856	178
27	1,940	2,040	4,930	1,000	8,500	3,310	3,750	1,100	484	326	740	164
28	1,850	2,190	4,720	1,730	11,400	4,380	3,420	960	463	1,440	540	160
29	1,990	2,140	3,090	1,260		5,010	3,250	960	467	903	532	179
30	2,040	2,290	2,610	8,180		4,720	3,030	859	720	559	658	405
31	1,710		2,400	14,500		7,060		803		1,300	464	
Month			Observed				Diversion		Adjusted for diversion			
			Second-foot-days	Maximum	Minimum	Mean	(Mean)	Mean	Per square mile	Run-off in inches		
October.....			48,565	2,520	925	1,567	253	1,820	0.961	1.11		
November.....			56,450	3,090	1,210	1,882	246	2,128	1.12	1.25		
December.....			178,070	25,200	2,040	5,744	249	5,993	3.17	3.66		
Calendar year 1938			1,060,953	25,200	594	2,907	244	3,151	1.66	22.61		
January.....			86,240	14,500	1,000	2,782	247	3,029	1.60	1.84		
February.....			227,820	22,400	3,470	8,136	256	8,392	4.43	4.61		
March.....			182,480	16,700	3,310	5,886	237	6,123	3.23	3.72		
April.....			174,420	18,200	3,030	5,814	246	6,060	3.20	3.57		
May.....			57,682	3,630	803	1,861	252	2,113	1.12	1.29		
June.....			26,694	3,960	463	890	261	1,151	.608	.68		
July.....			16,030	1,440	176	517	268	785	.415	.48		
August.....			36,191	5,440	268	1,167	274	1,441	.761	.88		
September.....			8,496	512	138	283	256	539	.285	.32		
Water year 1938-39			1,099,138	25,200	138	3,011	254	3,265	1.72	23.41		

Little Schuylkill River at Tamaqua, Pa.

Location.— Water-stage recorder and concrete control, lat. 40°48'20", long. 75°58'20", at Panther Valley Water Co. pumping plant, 0.6 mile above Tamaqua, Schuylkill County, and 0.8 mile above mouth of Panther Creek. Zero of gage is 817.46 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 42.9 square miles.

Record available.— October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; June 1916 to September 1939 in reports of Pennsylvania Department of Forests and Waters. Records prior to Oct. 1, 1938, obtained at a site 0.6 mile downstream.

Average discharge.— 21 years (1916-17, 1919-39), 92.9 second-feet.

Extremes.— Maximum discharge during year, 1,070 second-feet Dec. 6 (gage height, 4.56 feet); minimum, 6.4 second-feet Sept. 17-19, 24, 25 (gage height, 1.38 feet).

1916-39: Maximum discharge, 3,740 second-feet Aug. 24, 1933 (gage height, 7.50 feet); minimum 1.8 second-feet Dec. 18, 1930 (gage height, 1.21 feet); minimum daily discharge, 3.0 second-feet Dec. 23, 1930.

Remarks.— Records good except those for period of ice effect, Jan. 23-29 (determined from gage heights, weather records, one discharge measurement, and by comparison with records for stations in adjacent drainage areas), and those for period of back-water effect, Aug. 21 to Sept. 30, all of which are fair. Regulation from storage in Still Creek Reservoir. Water diverted above station not included in records except in last three columns of monthly table. Record of diversion furnished by Panther Valley Water Co.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	50	72	47	97	251	161	74	19.4	15.0	9.0	7.1
2	51	47	64	47	67	225	317	67	18.6	12.1	9.0	7.4
3	60	44	64	47	143	192	258	62	17.0	11.8	8.6	7.6
4	55	40	274	42	167	170	203	69	15.9	10.8	11.0	7.7
5	40	56	510	53	152	173	167	58	15.2	12.8	9.3	14.6
6	68	120	889	305	138	195	208	54	15.8	11.7	8.4	9.5
7	60	99	541	157	129	155	180	48	13.8	11.0	8.1	9.9
8	48	101	344	150	113	131	162	51	14.2	10.1	8.1	8.4
9	39	113	268	133	105	126	157	51	14.6	9.5	8.2	8.1
10	38	95	390	129	105	126	147	52	14.3	9.1	8.2	7.9
11	34	95	306	120	161	120	142	44	15.5	9.1	8.4	7.2
12	33	91	272	101	145	138	167	38	16.0	9.3	8.1	7.4
13	33	87	219	91	147	126	120	32	18.9	9.1	9.0	7.7
14	33	78	178	93	143	103	111	33	28	10.3	15.4	8.0
15	32	70	150	89	339	97	111	29	15.4	9.1	9.4	7.5
16	30	69	131	87	363	124	105	33	13.9	8.6	9.0	7.1
17	30	69	122	70	290	131	118	32	13.0	9.0	8.6	6.6
18	29	62	120	64	251	129	120	30	12.8	9.1	8.1	6.4
19	24	114	103	64	212	120	135	29	13.2	9.1	10.2	6.4
20	33	127	83	63	200	113	124	26	16.4	9.0	14.8	7.0
21	44	109	78	69	173	103	124	25	14.3	8.6	43	7.6
22	34	109	70	55	155	95	143	34	12.3	8.1	9.7	7.6
23	29	103	64	50	138	91	120	31	12.1	8.1	7.9	7.0
24	99	99	62	60	118	95	115	29	11.6	8.1	8.1	6.5
25	89	99	58	80	101	111	113	27	10.8	8.2	8.8	7.0
26	80	91	60	73	177	111	105	25	9.9	8.4	7.6	7.4
27	72	82	104	63	177	105	95	22	10.3	8.2	7.2	7.1
28	65	76	80	55	222	144	91	22	10.6	9.9	7.6	7.4
29	64	70	72	50		118	95	23	10.6	8.1	9.0	23
30	57	72	57	119		138	80	19.4	37	10.3	9.3	31
31	60		48	117		140		18.4		9.9	7.7	
Month			Observed				Diversion		Adjusted for diversion			
			Second-foot-days	Maximum	Minimum	Mean	(Mean)	Mean	Per square mile	Run-off in inches		
October.....			1,515	99	24	48.9	10.1	59.0	1.38	1.59		
November.....			2,537	127	40	84.6	10.1	94.7	2.21	2.47		
December.....			5,853	889	48	189	12.0	201	4.69	5.41		
Calendar year 1938			33,794.0	889	16.4	92.6	10.5	103	2.40	32.60		
January.....			2,743	305	42	88.5	13.7	102	2.38	2.74		
February.....			4,728	363	67	169	13.6	183	4.27	4.45		
March.....			4,196	251	91	135	12.7	148	3.45	3.98		
April.....			4,294	317	80	143	18.1	161	3.75	4.18		
May.....			1,187.8	74	18.4	38.3	17.8	56.1	1.31	1.51		
June.....			461.4	37	9.9	15.4	11.8	27.2	.634	.71		
July.....			301.5	15	8.1	9.73	8.96	18.7	.436	.50		
August.....			314.8	43	7.2	10.2	9.18	19.4	.452	.52		
September.....			271.1	31	6.4	9.04	14.2	23.2	.541	.60		
Water year 1938-39			28,402.6	889	6.4	77.8	12.7	90.5	2.11	28.66		

Perkiomen Creek at Graters Ford, Pa.

Location.— Water-stage recorder, lat. 40°13'45", long. 75°27'10", 1,650 feet above highway bridge at Graters Ford, Montgomery County, and 2½ miles north of Collegeville. Zero of gage is 112.37 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 279 square miles.

Records available.— October 1931 to September 1939 in reports of U. S. Geological Survey; June 1914 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 15 years (1914-16, 1926-39), 408 second-feet.

Extremes.— Maximum discharge during year, 14,800 second-feet Feb. 3 (gage height, 10.75 feet); minimum, 8.0 second-feet Sept. 28 (gage height, 0.82 foot); minimum daily discharge, 16 second-feet Sept. 24.

1914-39: Maximum discharge, 41,200 second-feet July 9, 1935 (gage height, 18.26 feet), from rating curve extended above 12,000 second-feet; minimum, that of Sept. 28, 1939; minimum daily discharge, 11 second-feet Sept. 18, 25, 1932.

Remarks.— Records fair except those for periods of recorder failure, Oct. 6-14, Dec. 26 to Jan. 5 (determined from partial gage record and by comparison with records for stations in adjacent drainage areas), and those for periods of ice effect, Nov. 26 to Dec. 4, Jan. 15-30 (determined from gage heights, weather records, and by comparison with records for stations in adjacent drainage areas), all of which are poor. Some regulation from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	136	184	125	190	879	2,210	614	246	68	167	92	51
2	118	162	120	175	673	904	1,990	224	64	96	56	45
3	107	148	120	165	5,840	636	750	199	66	58	51	43
4	102	138	3,200	160	3,770	558	518	188	67	58	48	43
5	100	145	2,830	155	1,110	803	416	172	62	61	53	46
6	110	155	4,550	1,160	781	1,220	3,640	165	64	69	53	38
7	350	165	1,110	614	1,120	706	3,020	155	52	78	49	39
8	250	152	688	404	1,030	472	896	155	57	82	45	40
9	200	172	593	304	845	453	673	148	60	156	40	36
10	160	169	1,610	364	1,380	404	544	165	54	82	28	28
11	130	145	789	416	2,740	342	491	133	51	71	36	39
12	120	129	644	280	948	375	1,120	129	50	53	35	36
13	110	124	544	242	681	798	544	106	99	51	25	35
14	105	132	404	226	593	935	428	129	583	49	141	26
15	102	121	336	210	1,950	907	399	126	158	60	106	28
16	96	106	265	190	1,950	2,230	358	110	100	49	60	30
17	93	110	260	180	666	773	454	109	77	42	48	23
18	96	117	280	170	600	558	1,920	99	758	39	42	30
19	92	136	270	160	593	447	1,320	94	310	40	340	20
20	88	544	233	150	572	422	1,150	90	288	38	546	19
21	248	289	211	150	466	387	621	92	196	28	279	26
22	163	220	195	150	441	353	524	304	120	29	128	24
23	118	199	192	145	332	347	435	424	95	26	88	19
24	322	211	172	140	304	315	370	350	81	30	96	16
25	572	204	172	140	299	315	331	173	65	25	99	30
26	264	180	170	130	1,240	326	315	121	59	23	97	22
27	211	160	1,200	125	1,360	289	342	102	58	29	104	20
28	199	150	700	120	4,220	934	304	94	59	61	74	20
29	377	140	450	120		592	280	86	55	61	61	21
30	293	150	300	3,000		1,270	255	79	61	53	61	85
31	211		220	1,620		1,130		74		436	53	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				5,643	572	88	182	0.652	0.75			
November.....				5,137	544	106	171	.613	.68			
December.....				22,953	4,550	120	740	2.65	3.06			
Calendar year 1938				143,264	8,740	37	393	1.41	19.08			
January.....				11,755	3,000	120	379	1.36	1.57			
February.....				37,383	5,840	299	1,335	4.78	4.98			
March.....				22,411	2,230	289	723	2.59	2.99			
April.....				25,022	3,640	255	834	2.99	3.34			
May.....				4,841	424	74	156	.559	.64			
June.....				3,937	758	50	131	.470	.52			
July.....				2,200	436	23	71.0	.254	.29			
August.....				3,034	546	25	97.9	.351	.40			
September.....				978	85	16	32.6	.117	.13			
Water year 1938-39				145,294	5,840	16	398	1.43	19.35			

Ridley Creek at Moylan, Pa.

Location.- Water-stage recorder, lat. 39°54'05", long. 75°23'35", at Fox Bank Bridge, at Moylan, Delaware County, 1 mile south of Media. Zero of gage is 87.36 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.- 31.9 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; August 1931 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.- Maximum discharge during year, 1,070 second-feet Feb. 3 (gage height, 4.66 feet), from rating curve extended above 300 second-feet; minimum, 1.7 second-feet Aug. 12, 13 (gage height, 0.42 foot); minimum daily discharge, 12 second-feet Aug. 11-13.

1931-39: Maximum discharge, 4,500 second-feet July 23, 1938 (gage height, 8.16 feet), from rating curve extended above 300 second-feet; minimum, 1.6 second-feet Oct. 2, 1932; minimum daily discharge, 3.8 second-feet Sept. 14, 1932.

Remarks.- Records good except those for period of ice effect and recorder failure, Nov. 24 to Dec. 5 (determined from weather records, one discharge measurement, and by comparison with records for stations in adjacent drainage areas), and those for period of recorder failure, June 14-20 (determined from range in stage shown by recorder chart and by comparison with records for stations in adjacent drainage areas), all of which are fair. Flow regulated by storage in reservoir of Media Water Co., which diverts about 1.08 second-feet daily to supply borough of Media.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	42	35	31	43	74	153	80	74	32	34	17	21			
2	37	34	33	43	76	96	163	70	34	26	15	20			
3	36	33	38	44	518	89	84	69	34	22	15	20			
4	35	34	150	44	194	87	79	68	36	22	20	20			
5	35	35	130	44	100	120	71	65	35	23	18	31			
6	56	38	250	62	92	114	291	63	32	27	15	20			
7	68	35	72	49	114	89	192	60	29	24	13	17			
8	42	35	58	53	90	80	102	59	30	23	18	19			
9	40	38	59	59	79	80	96	125	27	20	17	18			
10	37	34	111	60	101	76	93	77	27	22	14	20			
11	36	33	61	60	178	76	87	56	34	20	12	18			
12	35	33	55	56	90	117	93	52	37	18	12	20			
13	35	34	50	56	82	166	79	51	78	18	12	20			
14	35	37	48	63	80	98	76	54	150	25	15	19			
15	35	31	45	52	160	97	77	49	50	19	14	17			
16	34	31	42	42	140	191	76	49	40	18	14	16			
17	33	32	44	41	83	96	104	48	32	18	15	16			
18	32	32	46	42	83	87	121	46	26	18	13	16			
19	33	37	45	41	80	79	155	47	38	18	445	14			
20	34	49	42	39	82	82	111	43	42	16	112	14			
21	41	34	42	40	76	79	84	46	32	17	67	16			
22	34	31	41	41	76	78	79	60	27	17	32	16			
23	32	30	38	39	68	77	73	49	26	16	25	16			
24	59	30	41	41	69	74	71	44	25	16	24	16			
25	52	29	41	39	69	74	70	40	23	15	25	14			
26	37	28	40	37	222	75	191	39	22	15	23	14			
27	35	28	232	37	114	72	114	37	22	15	22	14			
28	42	28	57	35	246	99	87	36	23	22	22	17			
29	52	29	46	52		74	80	37	40	29	19	16			
30	43	30	45	397		116	76	34	98	31	32	35			
31	37		43	140		96		33		18	28				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				1,234		68		32		39.8		1.25		1.44	
November.....				997		49		28		33.2		1.04		1.16	
December.....				2,076		250		31		67.0		2.10		2.42	
Calendar year 1938				18,506		977		18		50.7		1.59		21.59	
January.....				1,891		397		35		61.0		1.91		2.20	
February.....				3,436		518		68		123		3.86		4.02	
March.....				2,987		191		72		96.4		3.02		3.48	
April.....				3,155		291		70		105		3.29		3.67	
May.....				1,678		125		33		54.1		1.70		1.96	
June.....				1,181		150		22		39.4		1.24		1.38	
July.....				642		34		15		20.7		1.649		.75	
August.....				1,145		445		12		36.9		1.16		1.34	
September.....				550		35		14		18.3		.574		.64	
Water year 1938-39				20,972		518		12		57.5		1.80		24.46	

Chester Creek near Chester, Pa.

Location.- Water-stage recorder, lat. 39°52'10", long. 75°24'30", at Dutton Mill Bridge, 3 miles northwest of Chester, Delaware County. Zero of gage is 23.54 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.- 61.1 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; August 1931 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.- Maximum discharge during year, 2,850 second-feet Aug. 19 (gage height, 9.22 feet), from rating curve extended above 800 second-feet; minimum, 11 second-feet Aug. 15 (gage height, 0.57 foot); minimum daily discharge, 25 second-feet Aug. 12, 13.

1931-39: Maximum discharge, 4,270 second-feet Aug. 23, 1933 (gage height, 11.48 feet), from rating curve extended above 800 second-feet; minimum, 0.3 second-feet Aug. 7, 1934 (gage height, 0.28 foot); minimum daily discharge, 6.8 second-feet Sept. 11, 14, 1932.

Remarks.- Records good except those for periods of ice effect, Nov. 24 to Dec. 3, Jan. 23-28 (determined from gage heights, weather records, and by comparison with records for stations in adjacent drainage areas), and those for period of missing gage record, June 22, 23 (determined by comparison with records for stations in adjacent drainage areas), all of which are fair. Regulation from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	76	61	60	70	120	281	137	131	67	65	33	38	
2	66	60	62	73	127	162	327	122	72	51	31	37	
3	62	58	68	71	943	144	148	118	70	46	29	37	
4	62	60	315	71	372	142	128	115	72	46	35	35	
5	61	65	252	69	168	210	121	110	74	50	35	59	
6	106	68	468	95	149	193	507	108	65	54	29	38	
7	120	64	120	75	192	151	456	103	62	51	28	35	
8	76	63	92	69	149	130	180	101	61	48	42	34	
9	69	70	92	65	131	131	168	258	62	49	38	32	
10	65	60	178	70	170	123	162	202	62	43	32	32	
11	63	60	95	68	359	124	149	114	76	42	28	32	
12	62	57	84	64	155	210	156	103	86	39	25	31	
13	61	60	82	65	139	320	134	101	153	39	25	36	
14	61	71	71	74	130	160	127	108	389	47	26	34	
15	62	60	68	67	259	174	131	98	76	40	26	31	
16	60	55	64	64	245	425	128	95	63	37	27	30	
17	58	58	69	63	134	170	195	92	58	37	48	29	
18	57	58	71	65	135	148	234	89	55	35	37	28	
19	58	77	68	65	130	138	281	87	80	35	1,090	26	
20	60	109	64	61	128	139	203	86	87	34	254	28	
21	76	68	65	62	121	132	146	89	63	35	163	28	
22	61	63	62	64	123	137	137	94	58	35	61	28	
23	58	61	60	60	105	131	126	89	56	33	45	26	
24	122	60	64	60	106	127	121	85	52	34	41	26	
25	97	58	64	58	106	127	118	79	49	34	44	26	
26	68	56	61	56	422	128	432	77	47	32	44	29	
27	64	54	486	56	203	123	232	77	46	35	39	26	
28	75	54	102	58	456	158	160	74	47	38	38	28	
29	91	56	75	79		127	146	72	56	45	36	26	
30	74	58	73	822		215	135	69	177	52	53	56	
31	65		71	292		164		67		35	50		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				2,216		122		57		71.5		1.17	1.35
November.....				1,882		109		54		62.7		1.03	1.15
December.....				3,626		486		60		117		1.91	2.20
Calendar year 1938				33,248		1,570		29		91.1		1.49	20.27
January.....				3,051		822		56		98.4		1.61	1.86
February.....				5,977		943		105		213		3.49	3.63
March.....				5,244		425		123		169		2.77	3.19
April.....				5,825		507		118		194		3.18	3.55
May.....				3,213		258		67		104		1.70	1.96
June.....				2,440		389		46		81.3		1.33	1.48
July.....				1,296		65		32		41.8		.684	.79
August.....				2,532		1,090		25		81.7		1.34	1.54
September.....				981		59		26		32.7		.535	.60
Water year 1938-39				38,283		1,090		25		105		1.72	23.30

Brandywine Creek at Chadds Ford, Pa.

Location.— Water-stage recorder, lat. 39°52'10", long. 75°35'35", at Pennsylvania Railroad bridge at Chadds Ford, Delaware County. Zero of gage is 150.19 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.— 287 square miles.

Records available.— October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1911 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 28 years, 381 second-feet.

Extremes.— Maximum discharge during year, 9,510 second-feet Aug. 20 (gage height, 10.72 feet); minimum, 79 second-feet Jan. 23 (gage height, 0.42 foot); minimum daily discharge, 140 second-feet Aug. 13, 14.

1911-39: Maximum discharge, 30,500 second-feet Mar. 5, 1920 (gage height, 15.0 feet, from floodmark), from rating curve extended above 7,000 second-feet; minimum, 18 second-feet Jan. 22, 1931 (gage height, 0.34 foot); minimum daily discharge, 50 second-feet Sept. 11, 13, 23, 1932.

Remarks.— Records good except those for periods of ice effect, Nov. 24 to Dec. 3, Jan. 26-28, which were determined from gage heights, weather records, and by comparison with records for stations in adjacent drainage areas, and are fair. Regulation at low stages from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	305	262	250	311	680	949	702	557	268	262	173	192	
2	288	254	260	317	597	990	1,310	518	279	218	160	188	
3	276	249	280	326	3,750	832	766	499	274	199	154	186	
4	268	249	1,250	317	2,770	810	659	480	285	197	152	186	
5	265	262	911	314	1,040	990	610	473	288	258	156	233	
6	357	282	1,800	552	854	1,130	1,280	458	260	246	148	197	
7	592	268	704	408	1,040	876	1,900	450	244	218	144	186	
8	345	260	518	352	967	723	899	436	241	211	170	186	
9	308	274	473	326	766	723	832	704	236	218	183	179	
10	285	257	674	336	876	680	788	665	233	199	156	177	
11	274	246	557	345	1,380	659	744	450	344	204	146	177	
12	268	241	447	320	876	795	876	415	572	190	144	173	
13	260	244	405	314	744	1,080	702	405	481	179	140	183	
14	265	262	374	330	702	1,010	638	422	1,180	214	140	186	
15	262	241	358	311	1,090	809	659	401	448	205	156	177	
16	262	233	333	308	1,580	1,100	638	388	317	181	303	170	
17	254	236	342	311	788	766	876	384	279	172	170	166	
18	249	241	355	311	766	680	1,280	368	254	170	154	164	
19	249	254	345	308	744	638	990	355	291	173	2,780	160	
20	260	364	330	285	744	659	899	348	348	168	3,750	164	
21	336	288	320	302	680	638	702	405	296	164	1,230	164	
22	285	254	314	308	680	638	659	454	251	164	450	164	
23	260	249	299	277	577	610	610	384	257	160	285	160	
24	380	240	308	314	577	597	577	348	236	162	238	158	
25	379	230	314	271	557	577	557	323	223	162	326	160	
26	285	220	302	260	1,270	577	936	314	214	156	236	158	
27	265	220	1,130	260	1,210	557	810	308	214	156	223	156	
28	285	220	511	270	1,680	898	659	302	211	279	206	160	
29	352	250	348	324	680	610	288	288	226	202	202	160	
30	317	240	356	2,030	900	577	276	290	216	206	206	225	
31	276		314	1,560		976		271		188	209		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				9,312		592		249		300		1.05	1.21
November.....				7,570		364		220		252		.878	.98
December.....				15,462		1,800		250		499		1.74	2.01
Calendar year 1938				158,919		6,620		202		435		1.52	20.61
January.....				12,878		2,030		260		415		1.45	1.67
February.....				29,985		3,750		557		1,071		3.73	3.88
March.....				24,547		1,130		557		792		2.76	3.18
April.....				24,745		1,900		557		825		2.87	3.20
May.....				12,849		704		271		414		1.44	1.66
June.....				9,602		1,180		211		320		1.11	1.24
July.....				6,115		279		156		197		.686	.79
August.....				13,290		3,750		140		429		1.49	1.72
September.....				5,295		233		156		176		.613	.68
Water year 1938-39				171,650		3,750		140		470		1.64	22.22

SUSQUEHANNA RIVER BASIN

North Branch of Susquehanna River at Towanda, Pa.

Location.- Water-stage recorder, lat. 41°45'55", long. 76°26'25", at Bridge Street Bridge, at Towanda, Bradford County, 1 3/4 miles above mouth of Towanda Creek. Prior to Oct. 18, 1938, wire-weight gage at same site and datum. Zero of gage is 693.65 feet above mean sea level (preliminary levels of 1923).

Drainage area.- 7,797 square miles.

Records available.- October 1918 to October 1920, October 1931 to September 1939 in reports of U. S. Geological Survey; December 1892 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 21 years (1918-39), 10,040 second-feet.

Extremes.- Maximum discharge during year, 128,000 second-feet Feb. 21 (gage height, 19.13 feet); minimum, 379 second-feet Sept. 25 (gage height, -0.23 foot).

1892-1939: Maximum discharge, 188,000 second-feet Mar. 19, 1936 (gage height, 25.03 feet); minimum, that of Sept. 25, 1939.

Maximum flood known prior to 1892, 25.0 feet Mar. 17, 1865 (discharge, about 188,000 second-feet).

Remarks.- Records good except those for period of ice effect, Jan. 22 to Feb. 15, which were computed on basis of gage heights, weather records, and records for stations upstream and downstream, and are fair. Gage read twice daily prior to Oct. 18.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,900	3,000	6,900	4,820	3,800	42,700	40,600	9,500	2,550	1,140	1,430	416
2	6,900	2,840	6,900	4,530	4,100	39,900	38,500	8,300	2,380	1,090	1,320	408
3	6,150	2,700	6,150	4,530	4,200	30,800	39,200	7,300	2,220	1,060	1,030	408
4	5,550	2,610	9,680	4,530	4,400	25,400	32,000	6,720	2,030	1,040	913	408
5	6,110	2,520	19,400	4,390	4,200	24,200	26,000	6,010	1,850	1,000	1,660	525
6	4,820	2,500	35,100	4,960	4,200	32,600	23,000	5,670	1,760	978	1,380	472
7	4,590	2,720	42,700	5,960	4,500	41,300	29,600	5,180	1,660	952	1,160	456
8	4,250	3,120	33,800	12,400	4,600	33,200	29,600	4,860	1,590	939	991	498
9	3,970	3,190	24,200	11,600	4,500	25,400	24,200	4,560	1,560	926	876	472
10	3,700	3,570	34,600	9,300	4,500	20,600	20,600	4,290	1,500	864	816	507
11	3,440	3,840	54,900	9,700	4,500	17,400	19,400	4,210	1,450	828	780	472
12	3,320	3,700	42,000	11,600	4,400	14,900	20,600	4,260	1,430	816	692	464
13	3,120	3,570	31,400	9,900	4,500	13,900	21,200	4,060	1,480	804	736	472
14	2,970	3,320	23,000	8,100	4,700	12,900	19,400	3,680	1,740	816	714	432
15	2,740	3,170	17,400	6,500	13,000	12,400	20,600	3,390	1,670	780	600	424
16	2,680	3,190	13,900	5,550	42,000	12,900	26,600	3,240	1,850	747	600	424
17	2,500	3,320	11,400	5,850	34,400	13,900	21,800	3,080	1,780	714	610	432
18	2,480	3,140	10,600	6,150	29,600	11,900	19,400	2,920	1,760	670	590	408
19	2,440	3,690	10,200	6,000	26,600	9,700	19,400	2,800	1,640	660	561	424
20	2,440	11,300	9,500	5,110	60,800	9,100	21,200	2,640	1,560	681	534	416
21	2,460	16,400	8,700	4,820	122,000	8,900	19,400	2,610	1,530	725	516	432
22	2,590	13,600	7,700	4,700	85,600	9,100	17,900	2,750	1,380	650	489	424
23	2,700	10,600	6,500	3,700	54,200	8,500	16,900	3,280	1,460	580	498	408
24	2,720	9,100	6,000	4,000	34,400	10,800	16,400	4,040	1,340	590	498	400
25	2,740	7,900	6,000	4,000	24,800	21,700	13,900	4,150	1,290	561	507	393
26	3,440	6,700	5,700	3,800	21,200	39,800	12,400	3,810	1,260	552	534	393
27	4,250	6,150	5,550	3,600	27,800	59,700	11,900	3,280	1,240	590	489	464
28	3,970	6,300	4,960	3,600	36,400	67,700	11,900	3,010	1,200	570	480	630
29	3,700	6,700	3,970	3,800		56,500	10,900	2,890	1,160	826	489	703
30	3,440	6,700	5,110	3,800		42,700	10,400	2,730	1,130	1,140	472	840
31	3,170		4,820	3,800		46,900		2,610		1,230	432	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					116,050	7,900	2,440	3,744	0.480		0.55	
November.....					161,160	16,400	2,500	5,372	.689		.77	
December.....					508,740	54,900	3,970	16,410	2.10		2.42	
Calendar year 1938.....					3,405,300	61,300	1,310	9,330	1.20		16.22	
January.....					188,090	12,400	3,600	6,067	.778		.89	
February.....					673,900	122,000	3,800	24,070	3.09		3.22	
March.....					817,400	67,700	8,500	26,370	3.38		3.90	
April.....					653,900	40,600	10,400	21,800	2.80		3.12	
May.....					131,830	9,500	2,610	4,252	.545		.63	
June.....					48,450	2,550	1,130	1,615	.207		.23	
July.....					25,519	1,230	552	823	.106		.12	
August.....					23,397	1,660	432	755	.097		.11	
September.....					14,025	840	393	468	.060		.07	
Water year 1938-39					3,362,461	122,000	393	9,212	1.18		16.03	

North Branch of Susquehanna River at Wilkes-Barre, Pa.

Location.- Water-stage recorder, lat. 41°15'00", long. 75°53'10", at Market Street Bridge, at Wilkes-Barre, Luzerne County, 1.6 miles above mouth of Toby Creek. Zero of gage is 511.94 feet above mean sea level (preliminary levels of 1934).

Drainage area.- 9,960 square miles.

Records available.- March 1899 to December 1913, October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; November 1890 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 40 years (1899-1939), 13,460 second-feet.

Extremes.- Maximum discharge during year, 137,000 second-feet Feb. 22 (gage height, 23.80 feet); minimum, 617 second-feet Sept. 18 (gage height, 0.69 foot).

1890-1939: Maximum discharge, 232,000 second-feet Mar. 20, 1936 (gage height, 33.07 feet); minimum, that of Sept. 18, 1939.

Maximum stage known, 33.1 feet, from floodmarks, Mar. 18, 1865 (discharge, about 232,000 second-feet).

Remarks.- Records good.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	10,500	4,110	8,960	6,010	7,090	55,100	54,300	12,900	3,600	1,960	1,600	725	
2	9,170	3,900	8,860	6,540	6,950	55,100	50,100	11,800	3,500	1,920	1,690	785	
3	8,250	3,700	8,860	6,540	8,250	44,500	50,800	10,500	3,310	1,800	1,940	706	
4	7,370	3,600	12,300	6,270	9,170	34,800	43,800	9,170	3,120	1,720	1,960	725	
5	6,540	3,600	23,000	6,140	7,950	30,600	36,000	8,550	2,940	1,650	1,740	765	
6	6,010	4,000	48,000	7,090	7,800	34,200	29,500	7,800	2,760	1,620	1,460	795	
7	5,620	4,440	55,100	9,810	8,250	44,500	30,600	7,230	2,590	1,580	1,960	795	
8	5,250	4,220	48,000	13,200	8,250	46,600	36,000	6,680	2,500	1,550	1,830	899	
9	4,900	4,780	43,100	15,600	8,250	41,000	31,200	6,540	2,340	1,480	1,660	857	
10	4,550	5,130	40,500	14,400	7,950	28,500	26,500	6,140	2,260	1,460	1,480	857	
11	4,330	5,010	71,100	12,900	8,250	24,000	24,000	5,880	2,260	1,390	1,300	815	
12	4,110	5,250	62,300	13,200	8,250	20,300	24,500	5,380	2,340	1,350	1,200	775	
13	3,900	5,130	47,300	14,000	7,950	17,600	26,000	5,380	2,420	1,240	1,190	795	
14	3,800	5,130	34,800	12,600	8,550	16,800	24,500	5,250	2,420	1,230	1,380	775	
15	3,600	4,660	26,500	10,100	17,000	16,000	23,000	4,900	2,590	1,170	1,180	745	
16	3,400	4,330	20,800	8,550	51,500	16,400	27,000	4,550	2,590	1,120	1,180	745	
17	3,220	4,220	17,200	7,950	47,300	18,000	28,500	4,330	2,590	1,110	1,160	670	
18	3,120	4,330	14,800	7,660	38,400	17,200	24,000	4,110	2,500	1,060	942	625	
19	3,030	4,550	14,000	8,250	33,600	14,800	23,000	3,900	2,420	1,020	920	643	
20	3,030	8,990	13,600	7,230	44,700	12,900	23,000	3,800	2,420	986	942	643	
21	3,120	16,400	12,600	6,540	113,000	12,200	23,500	3,900	2,340	920	942	652	
22	3,220	19,000	11,500	6,140	129,000	12,200	22,100	4,220	2,240	920	920	661	
23	3,220	16,000	9,810	5,620	84,700	12,200	21,200	5,620	2,210	942	856	661	
24	3,500	13,200	9,170	5,010	53,600	12,200	19,800	6,400	2,080	986	856	654	
25	4,000	11,500	8,550	5,500	56,600	17,600	17,600	6,140	2,080	942	1,060	661	
26	4,000	9,810	8,250	4,550	30,000	32,500	16,000	5,880	1,920	920	815	688	
27	4,110	8,860	8,550	4,000	34,200	55,900	14,800	5,500	1,860	953	795	899	
28	4,900	8,250	7,660	4,110	43,100	74,300	15,200	4,900	1,820	1,130	805	899	
29	5,130	8,250	6,680	4,660	75,900	14,800	14,800	4,330	1,800	1,160	785	953	
30	4,550	8,860	5,750	5,750	59,900	13,600	13,600	4,110	1,770	1,280	735	1,250	
31	4,440		5,750	7,660		53,600		3,700		1,230	725		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				147,890		10,500		3,030		4,771		0.479	0.55
November.....				213,210		19,000		3,600		7,107		.714	.80
December.....				713,250		71,100		5,750		23,010		2.31	2.66
Calendar year 1938				4,270,750		71,100		1,580		11,700		1.17	15.94
January.....				253,580		15,600		4,000		8,180		.821	.95
February.....				869,610		129,000		6,950		31,060		3.12	3.25
March.....				1,007,400		75,900		12,200		32,500		3.26	3.76
April.....				814,900		54,300		13,600		27,160		2.73	3.06
May.....				189,490		12,900		3,700		6,113		.614	.71
June.....				73,590		3,600		1,770		2,453		.246	.27
July.....				39,799		1,960		920		1,284		.129	.15
August.....				37,968		1,960		725		1,225		.123	.14
September.....				23,098		1,250		625		770		.077	.09
Water year 1938-39				4,383,785		129,000		625		12,010		1.21	16.38

North Branch of Susquehanna River at Danville, Pa.

Location.- Water-stage recorder, lat. 40°57'25", long. 76°37'20", at highway bridge at Danville, Montour County, three-quarters of a mile above mouth of Mahoning Creek. Prior to June 30, 1939, wire-weight gage at same site and datum. Zero of gage is 431.07 feet above mean sea level (preliminary levels of 1934).

Drainage area.- 11,220 square miles.

Records available.- March 1899 to December 1913, October 1918 to September 1921, July 1932 to September 1939 in reports of U. S. Geological Survey; March 1899 to December 1903, March 1905 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 36 years (1899-1900, 1901-3, 1905-31, 1932-39), 15,160 second-feet.

Extremes.- Maximum discharge during year, 139,000 second-feet Feb. 22 (gage height, 19.2 feet, from graph based on gage readings); minimum, 690 second-feet Sept. 20 (gage height, 1.61 feet).

1899-1939: Maximum discharge, 250,000 second-feet Mar. 20, 1936; maximum gage height, 30.7 feet, from floodmarks, Mar. 9, 1904 (affected by ice); minimum discharge, that of Sept. 20, 1939.

Remarks.- Records good except those for period of ice effect, Jan. 28 to Feb. 2, which were computed on basis of gage heights, weather records, and records for stations upstream. Discharge for days of missing gage record, Dec. 25, 27, Jan. 1, computed on basis of records for stations upstream. Gage read twice daily prior to June 30.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	13,000	4,750	10,200	6,800	11,000	61,500	61,500	15,500	4,220	2,180	1,850	932	
2	11,000	4,400	10,200	7,090	10,000	62,400	61,500	14,500	4,050	2,230	1,720	966	
3	9,530	4,220	10,200	7,520	11,500	53,400	59,700	13,000	3,850	2,180	1,910	966	
4	8,620	3,880	15,000	6,880	16,500	42,700	54,300	11,500	3,690	2,050	2,620	966	
5	7,730	3,820	26,600	6,880	13,500	36,300	45,100	10,500	3,440	1,980	2,800	1,000	
6	7,090	4,750	56,200	8,400	11,500	37,900	37,900	9,530	3,260	1,870	2,330	1,040	
7	6,880	5,490	67,800	10,200	11,200	47,500	34,900	8,840	3,010	1,820	1,890	1,040	
8	6,070	5,490	61,000	12,500	11,200	53,400	39,500	8,170	2,820	1,800	2,050	1,090	
9	5,680	5,490	48,300	16,500	10,800	45,100	41,100	7,520	2,720	1,740	2,210	1,090	
10	5,300	6,070	48,000	17,500	10,500	36,300	32,800	7,950	2,670	1,680	1,960	1,090	
11	4,930	6,070	76,400	15,500	11,800	29,300	29,300	7,300	2,540	1,590	1,780	1,040	
12	4,570	6,070	75,400	14,500	11,500	25,900	31,400	6,470	2,770	1,550	1,610	983	
13	4,570	6,070	58,800	15,000	11,000	22,900	31,400	6,270	2,770	1,470	1,490	932	
14	4,400	5,680	45,100	15,000	11,000	20,500	31,400	6,270	2,750	1,530	2,130	915	
15	4,220	5,680	33,500	13,500	15,200	19,900	28,600	5,880	2,770	1,470	2,000	915	
16	4,050	5,120	25,900	10,200	55,400	21,700	28,600	5,490	2,820	1,370	1,630	881	
17	3,690	4,930	20,500	9,760	60,600	23,500	35,600	5,120	2,880	1,310	1,550	847	
18	3,440	4,930	18,100	8,620	49,100	23,500	30,000	4,930	2,820	1,260	1,430	814	
19	3,380	5,370	16,500	9,070	41,900	19,900	27,900	4,570	2,770	1,260	1,350	768	
20	3,290	8,850	16,500	8,840	40,500	17,000	27,200	4,400	2,670	1,240	1,330	722	
21	3,380	15,200	15,000	7,730	92,400	15,500	27,200	4,220	2,700	1,180	1,870	752	
22	3,560	21,100	13,500	7,300	133,000	15,000	27,900	4,750	2,570	1,130	1,490	752	
23	3,530	19,900	12,000	6,470	101,000	15,000	25,900	5,490	2,420	1,090	1,280	752	
24	3,620	17,000	10,800	5,120	64,200	14,500	24,700	6,680	2,400	1,090	1,160	752	
25	4,570	14,500	9,900	5,490	44,300	14,000	22,300	6,880	2,280	1,140	1,370	752	
26	4,750	12,500	9,070	5,680	33,500	24,800	19,900	6,680	2,230	1,130	1,410	752	
27	4,570	11,500	9,700	4,220	38,700	49,400	18,700	6,270	2,090	1,610	1,220	737	
28	4,750	10,200	10,200	4,500	43,500	71,400	17,000	5,880	2,020	2,690	1,090	830	
29	5,680	9,760	8,400	5,200		82,400	18,100	5,300	2,000	1,850	1,020	1,070	
30	5,680	9,760	7,090	7,000		70,500	16,500	4,750	2,090	1,510	983	1,200	
31	5,120		6,470	10,000		59,700		4,400		1,740	983		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				170,650		13,000		3,290		5,505		0.491	0.57
November.....				248,750		21,100		3,820		8,292		.739	.82
December.....				851,330		76,400		6,470		27,460		2.45	2.82
Calendar year 1938				5,013,530		76,400		1,720		13,740		1.22	16.62
January.....				288,970		17,500		4,220		9,322		.831	.96
February.....				976,300		133,000		10,000		34,870		3.11	3.24
March.....				1,132,800		82,400		14,000		36,540		3.26	3.76
April.....				987,900		61,500		16,500		32,930		2.93	3.27
May.....				225,010		15,500		4,220		7,258		.647	.75
June.....				84,090		4,220		2,000		2,803		.250	.28
July.....				49,740		2,690		1,090		1,605		.143	.16
August.....				51,516		2,800		983		1,662		.148	.17
September.....				27,346		1,200		722		912		.081	.09
Water year 1938-39				5,094,402		133,000		722		13,960		1.24	16.89

Susquehanna River at Sunbury, Pa.

Location.— Water-stage recorder, lat. 40°50'55", long. 76°48'20", at highway bridge at Sunbury, Northumberland County, 1 mile above mouth of Shamokin Creek. Zero of gage is 419.00 feet above mean sea level (general adjustment of 1907).

Drainage area.— 18,300 square miles.

Records available.— October 1937 to September 1939 in reports of U. S. Geological Survey; August 1916 to September 1939 (gage height only prior to October 1937) in reports of Pennsylvania Department of Forests and Waters.

Extremes.— Maximum discharge during year, 183,000 second-feet Feb. 22 (gage height, 12.63 feet); minimum, 1,220 second-feet Sept. 25-27 (gage height, 0.23 foot).

1916-39: Maximum discharge, about 530,000 second-feet Mar. 19, 1936 (gage height, 26.85 feet, from floodmark); minimum, that of Sept. 25-27, 1939.

Maximum flood known prior to 1916, 22.5 feet in March 1865 (discharge not determined).

Remarks.— Records good except those for periods of ice effect, Dec. 29 to Jan. 1, Jan. 21 to Feb. 1, which were computed on basis of gage heights, weather records, and records for stations upstream, and are fair.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14,100	6,010	12,500	8,600	24,000	90,800	97,600	26,000	9,010	5,000	3,820	1,460
2	12,500	5,590	12,500	9,090	26,000	99,500	97,600	24,100	8,450	6,080	3,080	1,460
3	11,100	5,260	12,700	9,760	26,600	89,100	95,900	22,300	7,990	6,520	2,950	1,460
4	9,930	5,060	16,600	9,930	33,200	72,100	87,400	20,500	7,500	6,380	3,660	1,480
5	9,090	4,930	28,600	9,760	31,200	60,600	72,100	18,800	7,050	5,450	4,090	1,640
6	8,610	5,380	61,600	11,500	27,200	60,600	60,600	17,100	6,520	4,620	3,610	1,640
7	8,370	6,520	78,900	16,600	24,700	75,500	55,800	16,000	5,940	4,200	3,040	1,670
8	7,730	6,900	70,400	19,900	23,500	84,000	55,800	14,900	5,590	3,820	2,990	1,600
9	7,200	6,820	57,400	24,700	22,300	73,800	57,400	14,100	5,190	3,510	3,320	1,570
10	6,820	7,350	55,000	25,300	21,700	60,600	49,400	13,700	5,000	3,420	2,950	1,570
11	6,520	7,650	90,800	23,500	22,300	51,000	43,300	13,200	4,930	3,170	2,650	1,540
12	6,150	7,500	87,400	21,100	23,500	44,800	44,800	12,300	5,120	2,990	2,380	1,570
13	5,870	7,580	68,700	21,700	26,600	43,300	44,800	11,500	5,520	2,950	2,240	1,540
14	5,660	7,500	52,500	21,100	26,000	41,800	43,300	11,400	5,450	2,950	2,800	1,610
15	5,450	7,500	40,300	18,800	29,100	41,800	40,300	10,800	5,260	2,910	2,950	1,480
16	5,190	6,820	31,800	15,400	87,200	44,800	40,300	10,100	5,480	2,730	2,610	1,480
17	4,930	6,300	26,000	14,100	104,000	49,400	44,800	9,590	5,450	2,690	2,340	1,400
18	4,560	6,150	22,300	13,600	82,300	47,900	44,800	9,250	5,060	3,400	2,160	1,350
19	4,380	6,600	20,500	13,500	68,700	41,800	43,300	8,770	4,740	3,170	2,160	1,300
20	4,320	11,300	19,900	12,900	62,200	35,500	43,300	8,450	4,800	2,730	2,100	1,300
21	4,260	18,900	18,900	11,000	124,000	31,800	43,300	8,210	4,740	2,460	2,300	1,270
22	4,380	25,500	17,100	10,000	180,000	29,800	44,800	9,500	6,190	2,270	2,340	1,270
23	4,380	24,700	15,900	9,200	146,000	28,800	43,300	16,200	6,600	2,130	1,990	1,270
24	4,560	21,100	13,700	7,600	97,600	26,600	38,800	18,200	5,800	2,060	1,870	1,240
25	5,260	18,200	13,100	7,800	70,400	27,200	36,000	17,600	5,120	1,990	1,870	1,220
26	5,870	15,800	12,700	7,800	55,800	38,800	33,200	16,000	6,470	1,960	1,990	1,270
27	5,800	13,900	12,300	6,600	57,400	64,000	30,500	14,400	6,150	2,240	1,930	1,270
28	5,660	13,500	13,400	6,200	65,400	92,500	29,800	13,100	5,120	3,800	1,680	1,300
29	6,520	12,000	10,800	7,400	108,000	29,800	11,600	4,440	4,440	2,990	1,620	1,540
30	6,820	12,000	9,500	9,200	101,000	27,900	10,600	4,200	3,690	1,540	1,540	2,030
31	6,300		8,600	17,000		90,800		9,680		4,040	1,480	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					208,290	14,100	4,260	6,719	0.367		0.42	
November.....					310,020	25,500	4,930	10,350	.564		.63	
December.....					1,012,200	90,800	8,600	32,650	1.78		2.05	
Calendar year 1938.....					8,069,850	90,800	2,480	22,110	1.21		16.38	
January.....					420,440	25,300	6,200	13,560	.741		.85	
February.....					1,588,900	180,000	21,700	56,750	3.10		3.23	
March.....					1,847,300	108,000	26,600	59,590	3.26		3.76	
April.....					1,620,000	97,600	27,900	50,670	2.77		3.09	
May.....					437,950	26,000	8,210	14,130	.772		.89	
June.....					174,750	9,010	4,200	5,825	.318		.35	
July.....					108,320	6,520	1,960	3,494	.191		.22	
August.....					78,510	4,090	1,480	2,532	.138		.16	
September.....					43,400	2,030	1,220	1,447	.079		.09	
Water year 1938-39.....					7,750,080	180,000	1,220	21,230	1.16		15.74	

Susquehanna River at Harrisburg, Pa.

Location.— Water-stage recorder, lat. 40°15'10", long. 76°52'30", at Nagle Street, 500 feet above sanitary dam; water-stage recorder at Market Street Bridge, 3,700 feet above sanitary dam; and wire-weight gage at Walnut Street Bridge, 500 feet above Market Street; in Harrisburg, Dauphin County. Zero of gages is 290.04 feet above mean sea level (general adjustment of 1929).

Drainage area.— 24,100 square miles.

Records available.— October 1890 to September 1939.

Average discharge.— 49 years, 34,570 second-feet.

Extremes.— Maximum discharge during year, 210,000 second-feet Feb. 23 (gage height at Nagle Street, 11.72 feet; gage height at Walnut Street, 12.99 feet); minimum, 1,930 second-feet Sept. 27 (gage height at Nagle Street, 2.73 feet; gage height at Walnut Street, 2.80 feet).

1890-1939: Maximum discharge, 740,000 second-feet Mar. 19, 1936 (gage height at Nagle Street, 29.23 feet; gage height at Walnut Street, 30.33 feet); minimum, 1,600 second-feet Nov. 29, 1930 (gage height at Nagle Street, 2.48 feet; gage height at Walnut Street, 2.56 feet).

Maximum flood known prior to 1890, 26.8 feet at Walnut Street June 2, 1889 (discharge, about 699,000 second-feet).

Remarks.— Records excellent except those for periods of ice effect, Dec. 28 to Jan. 2, Jan. 15 to Feb. 3, which were computed on basis of power-house records of Holtwood plant of Pennsylvania Water & Power Co., and are good.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16,900	8,010	15,400	14,500	40,000	121,000	117,000	36,600	12,800	9,100	7,230	2,460
2	15,000	7,750	15,900	14,000	47,000	146,000	124,000	35,300	12,200	10,600	6,350	2,460
3	13,400	7,360	16,700	13,900	65,000	134,000	122,000	32,800	11,800	10,100	5,620	2,570
4	12,200	7,100	18,400	14,300	75,800	106,000	112,000	30,300	11,300	9,800	5,500	3,510
5	11,200	7,100	29,500	14,400	78,600	86,700	97,000	28,600	10,700	9,660	6,350	3,450
6	10,700	7,880	60,300	15,800	56,700	81,300	81,300	26,200	10,800	9,800	6,480	3,540
7	10,600	8,140	99,200	20,900	44,700	91,900	73,000	24,100	10,100	9,240	6,480	3,450
8	10,200	8,960	91,900	25,500	40,600	107,000	70,200	22,700	9,100	8,400	5,260	3,200
9	9,520	9,520	75,800	27,700	37,900	104,000	71,600	21,400	8,540	7,880	4,910	3,110
10	8,820	9,380	64,400	31,600	36,600	84,000	65,800	20,300	8,140	7,360	4,570	3,110
11	8,400	9,660	103,000	31,600	37,900	70,200	58,300	19,400	7,750	6,480	4,800	2,770
12	8,010	9,950	119,000	28,900	43,300	61,400	58,300	18,400	7,750	5,980	4,360	2,770
13	7,750	9,660	94,000	26,500	43,300	61,400	59,800	17,300	7,880	5,620	4,150	3,020
14	7,360	9,800	71,600	26,700	43,300	59,800	56,700	16,900	8,400	5,850	4,040	2,940
15	7,230	9,520	53,600	26,000	42,000	61,400	55,100	16,300	8,270	5,730	3,620	2,710
16	6,850	9,520	43,300	22,000	74,200	61,400	50,500	15,900	8,140	5,620	4,150	2,640
17	6,600	9,100	35,300	20,000	141,000	67,300	53,600	14,800	7,880	6,220	4,260	2,580
18	6,550	8,540	30,100	17,500	119,000	67,300	62,900	13,900	8,010	5,260	3,730	2,520
19	6,100	8,540	26,900	15,000	97,000	61,400	65,800	13,200	7,750	4,800	4,040	2,460
20	6,100	10,700	24,800	13,500	81,300	52,000	67,300	12,800	7,750	5,620	4,150	2,390
21	6,220	16,500	23,900	13,500	100,000	44,700	62,900	12,800	7,880	5,030	4,360	2,330
22	6,100	23,900	21,800	14,000	194,000	42,000	61,400	12,500	8,960	4,910	5,150	2,200
23	6,100	29,300	20,700	10,000	194,000	39,200	61,400	14,800	9,520	4,260	4,680	2,070
24	6,480	28,400	19,600	11,500	138,000	36,600	56,700	21,600	11,700	4,040	3,830	2,070
25	6,600	24,800	17,800	11,500	97,600	35,300	50,500	22,500	16,700	3,830	3,730	2,070
26	6,850	22,700	16,300	9,500	75,800	36,600	46,100	21,100	12,500	3,620	3,450	2,000
27	7,490	20,100	16,900	9,500	70,200	54,500	42,000	19,600	11,000	3,940	3,110	1,970
28	7,750	16,700	16,000	9,500	81,300	92,600	40,600	17,800	10,600	3,840	3,200	2,000
29	7,490	15,900	13,000	10,000		122,000	39,200	16,300	9,100	5,070	3,110	2,180
30	7,750	15,000	13,000	14,000		124,000	37,900	14,800	7,750	6,720	2,770	3,020
31	8,400		14,000	30,000		114,000		13,900		6,480	2,710	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					266,520	16,900	6,100	8,597	0.357		0.41	
November.....					389,490	29,300	7,100	12,980	.539		.60	
December.....					1,282,100	119,000	13,000	41,360	1.72		1.98	
Calendar year 1938.....					10,231,180	119,000	3,610	28,030	1.16		15.79	
January.....					562,300	31,600	9,500	18,140	.753		.87	
February.....					2,196,100	194,000	36,600	78,430	3.25		3.38	
March.....					2,427,000	146,000	35,300	78,290	3.25		3.75	
April.....					2,020,900	124,000	37,900	67,360	2.80		3.12	
May.....					624,900	36,600	12,500	20,160	.837		.96	
June.....					290,770	16,700	7,750	9,692	.402		.45	
July.....					200,960	10,600	3,620	6,483	.269		.31	
August.....					140,150	7,230	2,710	4,521	.188		.22	
September.....					79,570	3,540	1,970	2,652	.110		.12	
Water year 1938-39.....					10,480,760	194,000	1,970	28,710	1.19		16.17	

Susquehanna River at Marietta, Pa.

Location.— Water-stage recorder, lat. 40°03'15", long. 76°31'50", 420 feet above mouth of Chickies Creek and 1 mile below Marietta, Lancaster County. Zero of gage is 200.00 feet above mean sea level (general adjustment of 1929).

Drainage area.— 25,990 square miles.

Records available.— October 1931 to September 1939.

Extremes.— Maximum discharge during year, 213,000 second-feet Feb. 23 (gage height, 48.30 feet); minimum, 1,940 second-feet Sept. 24 (gage height, 31.40 feet); minimum daily discharge, 2,090 second-feet Sept. 24.

1931-39: Maximum discharge, 787,000 second-feet Mar. 19, 1936 (gage height, 60.73 feet), from rating curve extended above 450,000 second-feet; minimum, 618 second-feet Sept. 26, 1932 (gage height, 30.89 feet), when York Haven power plant was shut down in order to obtain current-meter measurements at low water; minimum daily discharge, 1,380 second-feet Sept. 26, 1932.

Maximum flood known prior to 1931, 58.3 feet, from floodmark, June 2, 1889 (discharge, about 700,000 second-feet).

Remarks.— Records excellent except those for period of ice effect, Jan. 18 to Feb. 4 (computed on basis of power-house records of Holtwood plant of Pennsylvania Water & Power Co.), and those for period of missing gage record, Sept. 1, 2 (computed on basis of record for station at Harrisburg and records of hydroelectric plants downstream), all of which are good. Flows below 8,000 second-feet regulated by Metropolitan Edison Co. plant at York Haven.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20,100	9,150	18,000	16,300	43,500	124,000	118,000	39,800	14,000	8,500	7,170	3,200
2	17,300	8,460	18,700	15,300	51,000	150,000	126,000	37,400	12,800	10,200	7,370	2,600
3	16,000	8,250	18,700	15,600	72,500	144,000	126,000	36,200	12,600	10,900	6,570	2,680
4	14,400	8,010	22,300	16,600	92,000	118,000	122,000	34,000	12,300	10,100	9,480	3,100
5	12,600	7,580	35,100	17,300	93,800	99,500	109,000	30,900	12,000	10,100	8,550	5,660
6	12,300	9,150	74,500	20,100	74,500	90,200	93,800	28,000	11,400	10,200	6,760	4,370
7	13,100	10,600	107,000	24,600	58,900	93,800	88,300	25,400	11,200	10,600	6,960	3,930
8	12,300	10,100	103,000	27,100	51,500	107,000	79,500	24,600	9,880	9,630	7,340	3,930
9	11,200	10,900	88,300	29,000	46,100	111,000	77,800	23,100	9,150	8,230	5,800	3,280
10	10,600	11,200	76,200	32,900	43,500	95,700	76,200	23,100	8,460	8,230	5,180	3,330
11	8,920	11,200	93,800	34,000	46,100	79,500	68,000	21,600	8,430	7,300	4,820	3,520
12	9,150	10,900	126,000	31,900	50,100	69,600	64,900	20,100	8,460	6,350	4,830	3,170
13	8,920	11,200	107,000	29,000	51,500	68,000	66,500	18,700	8,460	5,830	4,760	2,940
14	8,460	11,400	83,000	28,000	50,100	69,600	63,300	18,000	9,390	6,010	4,840	3,580
15	7,720	10,400	66,500	26,300	48,700	68,000	60,300	18,000	9,150	6,200	4,790	3,330
16	7,760	10,400	51,500	25,400	71,200	69,600	57,300	17,000	8,920	5,700	4,240	2,870
17	7,490	10,400	41,000	21,600	144,000	72,900	58,800	16,600	8,680	5,900	4,620	2,510
18	7,480	9,880	34,000	20,000	132,000	74,500	72,900	15,300	7,900	6,480	4,920	2,920
19	6,640	9,630	29,900	17,500	107,000	69,600	72,900	14,700	8,920	5,240	4,450	2,820
20	6,940	12,000	27,100	14,500	92,000	60,300	74,500	14,400	8,460	5,070	5,470	2,630
21	7,180	16,000	26,300	14,500	92,500	51,500	72,900	13,100	8,230	5,830	5,350	2,770
22	6,960	23,100	24,600	18,000	183,000	47,400	69,600	14,000	8,810	5,230	5,500	2,530
23	6,760	29,900	23,100	11,000	205,000	43,500	68,000	14,400	9,390	4,390	5,670	2,510
24	7,180	29,900	20,100	12,500	148,000	41,000	63,300	19,300	10,600	4,660	5,200	2,090
25	7,580	26,300	19,400	12,500	109,000	38,600	58,800	23,100	16,000	4,900	5,680	2,140
26	7,790	23,100	18,700	10,500	86,500	38,600	52,900	22,300	15,300	3,930	4,610	2,530
27	8,130	20,800	19,400	10,500	79,500	49,600	48,700	21,600	11,700	4,040	3,790	2,340
28	8,680	18,000	18,000	10,300	88,300	84,300	44,800	19,400	12,000	5,100	3,760	2,460
29	8,460	16,300	13,700	11,000		116,000	43,500	18,000	10,600	5,480	3,650	2,650
30	8,230	17,300	14,000	15,500		130,000	42,200	16,600	9,390	6,740	3,380	3,650
31	8,920		15,600	30,500		124,000		15,000		6,760	3,250	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					305,150	20,100	6,640	9,844	0.379		0.44	
November.....					421,510	29,900	7,580	14,050	.541		.60	
December.....					1,434,500	126,000	13,700	46,270	1.78		2.05	
Calendar year 1938					1,096,690	126,000	3,980	30,400	1.17		15.88	
January.....					619,800	34,000	10,300	19,990	.769		.89	
February.....					2,411,700	205,000	43,500	86,130	3.31		3.45	
March.....					2,599,300	150,000	38,600	83,850	3.23		3.72	
April.....					2,240,700	126,000	42,200	74,690	2.87		3.20	
May.....					673,700	39,800	13,100	21,730	.836		.96	
June.....					312,580	16,000	7,900	10,420	.401		.45	
July.....					213,420	10,900	3,930	6,885	.265		.31	
August.....					168,760	9,480	3,250	5,444	.209		.24	
September.....					91,840	5,660	2,090	3,061	.118		.13	
Water year 1938-39					11,492,960	205,000	2,090	31,490	1.21		16.44	

Towanda Creek near Monroeton, Pa.

Location.— Chain gage, lat. 41°42'35", long. 76°29'00", at highway bridge 1½ miles above mouth of South Branch of Towanda Creek and 1½ miles southwest of Monroeton, Bradford County. Zero of gage is 774.14 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 214 square miles.

Records available.— October 1920 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; January 1914 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 21 years (1914-16, 1920-39), 280 second-feet.

Extremes.— Maximum discharge during year, 7,300 second-feet Dec. 10 (gage height, 7.3 feet, from graph based on gage readings); minimum, 1.1 second-feet Sept. 3 (gage height, 0.21 foot).

1914-39: Maximum discharge, about 15,800 second-feet Nov. 16, 1926 (gage height, 11.0 feet, from graph based on gage readings); minimum, 0.7 second-foot Sept. 15, 17, 21, 22, 1932.

Remarks.— Records fair except those for periods of ice effect, Nov. 25 to Dec. 4, Dec. 24 to Jan. 5, Jan. 14 to Feb. 14, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Gage read twice daily. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	30	120	70	350	1,650	717	212	71	29	17	1.4
2	30	28	110	72	260	840	1,180	186	66	21	11	1.4
3	27	27	130	69	400	619	709	172	58	14	8.1	1.1
4	24	26	600	66	500	535	555	158	53	11	12	3.5
5	22	27	824	66	340	741	458	146	47	9.8	17	4.8
6	23	43	1,960	417	400	1,060	411	130	41	10	14	4.8
7	25	46	865	349	330	840	458	120	34	9.3	10	4.6
8	26	42	564	305	250	535	345	112	31	8.8	7.7	4.1
9	25	50	464	229	210	483	325	108	27	12	6.6	3.5
10	22	52	5,150	247	200	434	305	110	26	10	5.8	3.6
11	20	49	2,200	265	300	325	305	99	34	7.7	5.1	3.8
12	18	44	865	200	250	305	345	88	86	7.0	4.6	3.3
13	17	43	626	154	200	305	305	80	44	6.2	4.6	4.1
14	16	52	397	140	270	261	268	77	50	6.2	8.4	3.8
15	16	46	505	150	2,960	286	345	74	45	6.6	8.1	3.5
16	15	44	229	120	1,610	535	305	68	33	5.8	7.3	2.8
17	17	40	223	110	741	366	268	64	29	5.1	5.5	2.5
18	17	39	203	96	678	248	305	59	26	4.6	4.1	2.3
19	16	175	180	84	798	225	345	54	25	4.1	3.8	2.0
20	18	505	162	75	3,920	228	345	60	26	3.5	4.1	2.0
21	25	397	152	68	1,980	231	286	165	31	3.3	4.1	2.5
22	27	285	135	64	945	212	516	366	27	3.0	3.8	2.2
23	24	223	112	60	590	197	388	553	24	2.8	3.0	2.2
24	25	183	105	58	509	286	325	345	19	7.3	2.6	2.0
25	32	150	100	56	411	483	286	251	17	12	2.3	2.2
26	31	140	96	54	505	741	268	192	16	8.4	2.2	2.2
27	29	130	110	52	1,200	709	244	158	14	10	1.9	5.5
28	26	120	95	50	1,570	648	222	132	13	14	1.7	19
29	38	110	84	52		741	268	114	12	13	1.7	21
30	35	110	76	90		875	237	99	31	14	1.6	52
31	32		72	270		945		84		22	1.4	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				761	38	15	24.5	0.114	0.13			
November.....				3,256	505	25	108	.505	.56			
December.....				17,314	5,150	72	559	2.61	3.01			
Calendar year 1938.....				74,761.2	5,150	4.3	205	.958	12.98			
January.....				4,137	417	50	133	.621	.72			
February.....				22,677	3,920	200	810	3.79	3.95			
March.....				16,889	1,650	197	545	2.55	2.94			
April.....				11,619	1,180	222	387	1.81	2.02			
May.....				4,636	553	54	150	.701	.81			
June.....				1,056	86	12	35.2	.164	.18			
July.....				801.5	29	2.8	9.73	.045	.05			
August.....				190.9	17	1.4	6.16	.029	.03			
September.....				173.6	62	1.1	5.79	.027	.03			
Water year 1938-39.....				83,010.0	5,150	1.1	227	1.06	14.43			

Tunkhannock Creek at Dixon, Pa.

Location.- Water-stage recorder, lat. 41°33'30", long. 75°53'40", at highway bridge at Dixon, Wyoming County, 3 miles northeast of Tunkhannock and 4 miles above mouth. Zero of gage is 610.50 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.- 383 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; January 1914 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 21 years (1918-39), 537 second-feet.

Extremes.- Maximum discharge during year, 11,500 second-feet Feb. 15 (gage height, 9.90 feet), from rating curve extended above 5,300 second-feet; minimum, 17 second-feet July 26, 27 (gage height, 1.04 feet).

1914-39: Maximum discharge, 19,100 second-feet Sept. 30, 1924 (gage height, 13.1 feet), from rating curve extended above 5,300 second-feet; minimum, 9.0 second-feet Aug. 12, 1930 (gage height, 0.73 foot).

Remarks.- Records fair. Discharge for periods of ice effect, Nov. 26 to Dec. 3, Dec. 24 to Jan. 5, Jan. 16 to Feb. 3, computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations. Some regulation from storage in natural and artificial lakes and from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	257	261	390	230	560	2,520	1,360	389	87	92	38	21
2	224	246	370	240	500	1,600	2,810	341	85	60	33	25
3	224	224	370	240	580	1,210	1,860	310	77	45	29	25
4	185	211	2,630	230	746	1,120	1,450	280	68	33	39	26
5	170	214	3,400	230	698	1,260	1,170	261	68	31	58	56
6	162	768	7,560	740	563	1,700	1,180	242	65	25	46	51
7	162	641	3,370	761	497	1,400	1,710	228	57	21	41	45
8	142	509	2,130	641	457	939	1,100	218	54	26	37	40
9	140	919	1,600	509	441	883	972	204	52	33	32	33
10	140	668	5,300	509	409	836	891	228	56	41	27	30
11	128	563	3,760	608	474	641	867	207	62	48	33	29
12	122	497	2,300	491	572	576	1,360	179	148	39	32	31
13	118	446	1,650	389	506	588	1,120	165	122	33	31	30
14	106	509	1,210	369	503	569	923	162	156	31	50	34
15	102	404	947	336	5,040	526	1,410	159	145	34	65	24
16	95	350	710	310	4,330	903	1,140	145	122	33	48	23
17	102	327	675	300	2,300	947	931	138	99	25	35	23
18	95	318	641	280	1,860	668	867	136	74	24	56	23
19	87	972	588	260	1,700	549	899	128	83	21	28	24
20	102	1,830	514	240	4,960	569	836	122	70	21	33	23
21	195	1,050	463	230	3,940	538	696	121	70	21	28	24
22	182	860	414	230	2,600	514	852	255	75	22	34	23
23	142	710	332	220	1,650	514	761	318	67	21	25	24
24	249	601	320	220	1,360	753	634	261	57	20	25	24
25	614	485	310	210	1,020	1,260	563	176	50	19	37	24
26	346	430	290	200	1,710	1,700	514	145	52	17	51	24
27	272	400	320	200	2,570	1,500	485	122	51	26	35	35
28	446	380	290	200	2,140	2,220	503	108	45	35	30	51
29	364	370	260	210		1,600	468	108	43	36	30	75
30	341	370	240	350		1,520	409	95	40	36	33	170
31	293		230	650		1,860		91		39	21	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				6,307	614	87	203	0.530	0.61			
November.....				16,533	1,830	211	551	1.44	1.61			
December.....				43,484	7,560	280	1,403	3.66	4.18			
Calendar year 1938				187,897	7,560	45	515	1.34	18.20			
January.....				10,833	761	200	349	.911	1.05			
February.....				44,686	5,040	409	1,596	4.17	4.34			
March.....				33,983	2,520	514	1,096	2.86	3.30			
April.....				30,741	2,810	409	1,025	2.68	2.99			
May.....				6,041	389	91	195	.509	.59			
June.....				2,300	156	40	76.7	.200	.22			
July.....				1,028	92	17	33.2	.087	.10			
August.....				1,120	65	21	36.1	.094	.11			
September.....				1,090	170	21	36.3	.095	.11			
Water year 1938-39				198,146	7,560	17	543	1.42	19.27			

Lackawanna River at Old Forge, Pa.

Location.- Water-stage recorder, lat. 41°21'35", long. 75°44'40", 150 feet above Delaware, Lackawanna & Western Railroad bridge, at Old Forge, Lackawanna County, half a mile above mouth of Ascension Brook. Zero of gage is 595.08 feet above mean sea level (preliminary levels of 1934).

Drainage area.- 332 square miles.

Records available.- October 1938 to September 1939.

Extremes.- Maximum discharge during period, 9,040 second-feet Feb. 15 (gage height, 7.89 feet), from rating curve extended above 3,400 second-feet; minimum, 70 second-feet Sept. 17 (gage height, 1.95 feet); minimum daily discharge, 85 second-feet Sept. 17.

Maximum stage known, about 17.0 feet July 28, 1934 (discharge not determined).
Remarks.- Records good. Regulation from operation of mills and mine pumps upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		232	460	410	380	1,820	1,080	728	238	205	131	153
2		224	410	397	368	1,410	1,970	660	286	162	124	116
3		210	413	374	673	1,160	1,570	615	253	168	116	113
4		205	1,520	357	833	1,090	1,250	550	234	138	175	123
5		233	3,210	351	630	1,120	1,090	508	217	146	136	142
6		453	6,740	764	600	1,460	1,170	480	213	162	107	141
7		454	3,110	765	608	1,410	1,520	474	202	150	109	142
8		430	1,950	705	542	1,080	1,160	441	213	162	118	140
9		622	1,520	600	508	1,010	1,040	550	217	136	128	118
10		586	2,840	586	508	961	969	578	209	139	124	110
11		514	2,590	622	615	841	967	474	198	147	121	104
12		460	1,760	586	564	849	1,410	410	217	162	112	117
13		447	1,550	514	550	810	1,140	391	202	151	194	114
14		480	1,120	508	638	728	1,030	391	236	153	170	99
15		416	969	460	3,720	709	1,140	357	217	144	127	91
16		380	841	410	3,380	889	1,110	335	217	121	112	95
17		368	810	416	1,880	849	977	330	198	126	116	85
18		357	772	397	1,570	758	929	320	174	128	112	96
19		568	705	380	1,410	682	1,070	280	188	124	110	112
20	168	1,020	652	330	2,690	682	1,030	294	202	123	101	120
21	186	818	622	368	3,040	682	897	304	194	138	107	116
22	181	698	571	351	2,010	638	969	417	178	124	114	114
23	156	622	508	280	1,300	600	929	616	181	99	112	101
24	263	586	501	299	1,130	690	841	638	182	118	262	90
25	309	535	487	309	1,010	942	772	514	165	132	226	107
26	266	487	460	244	1,170	1,460	735	403	168	134	150	125
27	258	487	508	232	1,460	1,520	722	368	164	147	121	238
28	284	480	447	244	1,580	1,690	969	335	147	121	123	165
29	294	460	410	244		1,350	825	320	154	126	128	174
30	258	460	416	468		1,250	750	299	161	122	120	230
31	244		380	460		1,410		279		118	130	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.. 20-31.....				2,867	309	156	239	0.720	0.32			
November.....				14,292	1,020	205	476	1.43	1.60			
December.....				39,052	6,740	380	1,260	3.80	4.38			
Calendar year 1938												
January.....				13,431	765	232	433	1.30	1.50			
February.....				35,367	3,720	368	1,263	3.80	3.96			
March.....				32,550	1,820	600	1,050	3.16	3.64			
April.....				32,031	1,970	722	1,068	3.22	3.59			
May.....				13,659	728	279	441	1.33	1.53			
June.....				6,025	286	147	201	.605	.68			
July.....				4,326	205	99	140	.422	.49			
August.....				4,136	262	101	133	.401	.46			
September.....				3,791	238	85	126	.380	.42			
Water year 1938-39												

Wapwallopen Creek near Wapwallopen, Pa.

Location.- Water-stage recorder, lat. 41°03'35", long. 76°05'25", at Harts Bridge, 2½ miles southeast of Wapwallopen, Luzerne County, and 3½ miles above mouth. Zero of gage is 752.41 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.- 45.8 square miles.

Records available.- October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; October 1919 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 19 years (1920-39), 61.4 second-feet.

Extremes.- Maximum discharge during year, 1,080 second-feet Dec. 6 (gage height, 5.61 feet); minimum, 2.2 second-feet Sept. 19, 20 (gage height, 0.68 foot).

1919-39: Maximum discharge, 2,260 second-feet Sept. 30, 1924 (gage height, 7.9 feet, from graph based on gage readings), from rating curve extended above 1,300 second-feet; minimum, 1.8 second-feet Sept. 1, 1936; minimum daily discharge, 2.2 second-feet Sept. 19, 20, 1939.

Remarks.- Records fair. Discharge for periods of ice effect, Nov. 25 to Dec. 3, Dec. 23 to Jan. 5, Jan. 14 to Feb. 2, Feb. 22-25, computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations. Some regulation at low stages from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	20	24	48	35	120	248	128	54	20	9.8	14	4.1	
2	19	24	46	36	110	179	155	49	19	9.7	10	3.9	
3	19	22	47	34	285	147	175	46	17	8.8	7.9	4.2	
4	17	21	300	33	246	130	149	43	17	7.9	19	5.4	
5	17	34	479	33	141	139	130	41	17	7.9	16	7.9	
6	26	106	835	160	111	182	151	38	16	7.9	10	8.2	
7	35	61	431	88	99	139	157	36	14	8.2	8.5	6.6	
8	24	51	297	73	82	108	116	35	14	8.2	8.5	5.3	
9	21	86	225	63	74	106	105	68	13	6.7	7.9	4.1	
10	19	64	569	63	71	104	98	91	13	5.7	7.6	3.9	
11	18	57	355	61	131	84	115	50	20	5.5	6.7	3.9	
12	17	52	264	55	103	94	235	42	47	6.0	5.7	3.9	
13	15	51	203	49	92	105	147	41	19	5.7	5.4	3.9	
14	15	59	159	46	96	89	128	44	20	5.7	5.6	4.5	
15	14	48	131	44	394	94	127	38	18	5.7	7.6	4.1	
16	14	44	117	42	356	166	110	36	15	5.5	6.5	3.6	
17	14	42	96	41	237	146	116	35	14	5.7	5.7	3.0	
18	15	40	88	40	205	112	124	32	13	5.3	5.0	2.7	
19	14	104	78	39	195	104	139	29	13	5.0	3.6	2.2	
20	16	148	68	38	225	95	111	28	13	5.0	7.2	2.2	
21	25	89	61	37	180	92	94	28	15	5.0	11	2.9	
22	21	82	56	37	160	89	128	40	13	4.3	7.6	2.7	
23	16	74	52	36	130	82	102	45	12	3.9	5.9	3.0	
24	60	70	48	35	110	92	88	32	11	3.6	6.2	3.1	
25	60	62	44	35	100	108	83	28	10	3.9	6.2	2.4	
26	36	56	41	34	195	136	80	25	9.7	3.9	6.2	2.7	
27	32	52	39	33	198	105	78	23	8.8	5.5	5.3	3.2	
28	30	49	37	33	240	163	70	22	8.8	11	4.8	3.8	
29	28	47	36	35	123	68	68	22	8.8	11	4.3	4.8	
30	26	47	35	80	150	60	60	20	8.8	8.5	4.1	9.0	
31	25		34	170		154		18		52	3.8		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				728		60		14		23.5		0.513	0.59
November.....				1,766		148		21		58.9		1.29	1.44
December.....				5,319		835		34		172		3.76	4.33
Calendar year 1938				25,661		835		10		70.3		1.53	20.87
January.....				1,638		170		33		52.8		1.15	1.33
February.....				4,686		394		71		167		3.65	3.80
March.....				3,865		248		82		125		2.73	3.15
April.....				3,567		235		60		119		2.60	2.90
May.....				1,179		91		18		38.0		.830	.96
June.....				457.9		47		8.8		15.3		.334	.37
July.....				248.5		52		3.6		8.02		.175	.20
August.....				233.8		19		3.6		7.54		.165	.19
September.....				125.2		9.0		2.2		4.17		.091	.10
Water year 1938-39				23,813.4		835		2.2		65.2		1.42	19.36

Fishing Creek near Bloomsburg, Pa.

Location.- Water-stage recorder, lat. 41°04'40", long. 76°26'00", at highway bridge 0.2 mile above mouth of Deerlick Run, 0.9 mile west of Orangeville, and 5.5 miles north-east of Bloomsburg, Columbia County.

Drainage area.- 274 square miles.

Records available.- June 1938 to September 1939.

Extremes.- Maximum discharge during year, 5,290 second-feet Dec. 10 (gage height, 6.60 feet), from rating curve extended above 1,400 second-feet; minimum, 7.6 second-feet July 19 (gage height, 1.71 feet); minimum daily discharge, 18 second-feet July 22, 23, 1938-39; Maximum discharge, that of Dec. 10, 1938; minimum, that of July 19, 1939; minimum daily discharge, that of July 22, 23, 1939.

Maximum stage known, 11.86 feet, from floodmarks, Mar. 18, 1936 (discharge not determined).

Remarks.- Records fair. Discharge for period of ice effect, Jan. 16 to Feb. 3, computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations. Discharge for period of recorder failure, July 21-25, computed on basis of range in stage shown by recorder graph and records for nearby stations. Regulation from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	129	94	276	204	570	2,480	1,050	385	155	61	76	30
2	106	80	258	219	520	1,650	2,200	354	153	49	61	32
3	109	84	249	216	880	1,230	1,670	320	119	45	63	31
4	102	80	1,160	208	1,240	1,010	1,230	309	99	43	228	32
5	99	86	1,420	197	836	963	972	285	108	42	201	45
6	112	208	3,270	562	758	1,440	993	262	90	45	115	49
7	145	249	2,200	583	670	1,350	1,140	245	84	40	80	40
8	115	212	1,380	510	570	1,050	860	237	73	35	74	39
9	102	245	1,040	452	522	945	780	220	74	34	74	32
10	102	216	3,540	435	498	860	698	221	50	32	53	31
11	84	201	3,450	441	691	691	704	208	64	30	53	31
12	78	190	2,000	407	616	705	1,160	197	68	28	51	31
13	71	175	1,330	359	602	735	886	186	65	25	112	31
14	74	220	990	348	628	670	780	175	79	27	258	31
15	71	193	780	304	2,400	713	812	175	73	30	118	29
16	60	171	602	290	2,920	1,090	712	159	72	26	96	28
17	69	164	552	270	1,540	1,060	677	152	70	25	69	21
18	61	168	516	250	1,230	820	677	143	60	23	61	24
19	61	435	469	230	1,050	680	677	124	65	19	61	19
20	65	990	418	220	1,460	656	616	130	69	20	74	25
21	96	720	385	210	1,860	602	558	136	68	19	76	23
22	82	576	354	210	1,610	558	835	212	61	18	61	24
23	76	487	294	200	1,120	516	728	280	58	18	53	19
24	106	435	304	190	945	528	677	204	58	20	49	19
25	197	375	285	190	780	596	628	166	50	30	53	24
26	158	338	262	180	1,090	758	576	148	49	28	49	21
27	126	328	323	170	1,650	765	534	132	49	347	46	22
28	115	294	278	160	1,960	1,050	498	126	47	276	39	24
29	106	285	249	170		928	469	144	46	106	40	28
30	99	272	241	250		1,010	418	112	52	71	35	60
31	99		216	850		1,210		122		99	32	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				3,075	197	60	99.2	0.362	0.42			
November.....				8,571	990	80	286	1.04	1.16			
December.....				29,091	3,540	216	938	3.42	3.94			
Calendar year 1938												
January.....				9,485	850	160	306	1.12	1.29			
February.....				31,216	2,920	498	1,115	4.07	4.24			
March.....				29,319	2,480	516	946	3.45	3.98			
April.....				25,215	2,200	418	840	3.07	3.42			
May.....				6,269	385	112	202	.737	.85			
June.....				2,228	155	46	74.3	.271	.30			
July.....				1,711	347	18	55.2	.201	.23			
August.....				2,511	258	32	81.0	.296	.34			
September.....				895	60	19	29.8	.109	.12			
Water year 1938-39				149,586	3,540	18	410	1.50	20.29			

West Branch of Susquehanna River at Bower, Pa.

Location.- Water-stage recorder, lat. 40°53'50", long. 78°40'40", at highway bridge at Bower, Clearfield County, 4.8 miles below Mahaffey and mouth of Chest Creek. Zero of gage is 1,206.39 feet above mean sea level (general adjustment of 1907).

Drainage area.- 315 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; October 1913 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 26 years, 558 second-feet.

Extremes.- Maximum discharge during year, 4,320 second-feet Feb. 15; maximum gage height, 9.92 feet Jan. 31 (affected by ice); minimum discharge, 14 second-feet Aug. 29 (gage height, 3.71 feet); minimum daily discharge, 16 second-feet Aug. 29, Aug. 31 to Sept. 2.

1913-39: Maximum discharge, 31,500 second-feet Mar. 18, 1936 (gage height, 19.74 feet, from floodmark in gage shelter), from rating curve extended on basis of slope-area determination; minimum, that of Aug. 29, 1939; minimum daily discharge, 16 second-feet Sept. 29, Oct. 1, 6, 13, 1930, Aug. 29, Aug. 31 to Sept. 2, 1939.

Remarks.- Records good except those for periods of recorder failure, Mar. 1-14, Apr. 18, 19 (computed on basis of range in stage shown by recorder graph and records for stations downstream), which are fair, and those for periods of ice effect, Nov. 24 to Dec. 4, Dec. 15 to Jan. 4, Jan. 14-31 (computed on basis of gage heights, weather records, one discharge measurement, and records for stations downstream), which are poor. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	25	66	48	1,760	3,000	2,020	476	90	972	64	16
2	26	27	64	52	1,490	2,000	2,150	390	96	522	53	16
3	25	26	62	70	3,060	1,200	1,480	330	108	338	49	17
4	21	30	260	160	2,210	1,100	1,160	290	101	268	45	20
5	22	32	350	276	1,440	1,600	908	258	87	309	44	45
6	27	42	236	357	1,120	2,400	938	238	78	245	37	46
7	31	44	195	319	1,090	1,700	1,120	222	68	182	36	36
8	38	46	156	226	901	1,300	828	207	70	188	42	29
9	31	46	129	264	1,090	1,000	736	201	185	397	47	24
10	29	48	127	179	2,100	700	718	290	138	201	38	24
11	27	38	117	192	3,540	650	672	235	188	144	36	21
12	26	34	106	166	2,170	1,100	605	195	166	114	31	22
13	28	35	104	126	1,480	1,000	585	173	117	123	39	27
14	32	52	74	110	1,400	1,400	536	161	106	1,170	69	29
15	38	58	100	100	3,230	1,920	974	161	97	514	58	28
16	33	44	80	100	2,800	2,250	1,090	146	86	276	38	27
17	32	43	70	110	1,700	1,600	1,360	138	82	198	32	18
18	28	44	66	100	1,320	1,160	1,400	131	621	158	30	18
19	29	82	62	87	1,240	850	1,300	123	993	142	28	21
20	32	230	58	76	1,880	796	1,120	129	974	119	29	23
21	42	124	55	73	1,830	736	868	184	607	101	26	21
22	39	90	53	72	1,440	620	712	404	410	92	26	21
23	34	71	51	68	985	540	590	377	1,180	82	24	21
24	32	64	52	65	850	503	512	282	1,060	80	22	21
25	30	60	54	61	650	498	453	216	570	72	23	22
26	32	56	53	58	702	489	414	173	377	66	21	22
27	32	54	52	56	1,120	480	390	146	276	67	20	21
28	32	52	51	62	2,460	2,030	357	131	452	72	20	19
29	30	52	50	100		1,360	323	127	328	69	16	22
30	34	62	50	1,000		2,070	315	115	830	75	18	23
31	28		49	3,000		2,870		101		72	16	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					947	42	21	30.5		0.097		0.11
November.....					1,711	230	25	57.0		.181		.20
December.....					3,052	350	49	98.5		.313		.36
Calendar year 1938.....					152,458	3,660	21	418		1.33		17.98
January.....					7,733	3,000	48	249		.790		.91
February.....					47,058	3,540	650	1,681		5.34		5.56
March.....					40,922	3,000	480	1,320		4.19		4.83
April.....					26,632	2,150	315	888		2.82		3.15
May.....					6,750	476	101	218		.692		.80
June.....					10,539	1,180	68	351		1.11		1.24
July.....					7,418	1,170	66	239		.759		.88
August.....					1,079	69	16	34.8		.110		.13
September.....					724	46	16	24.1		.076		.08
Water year 1938-39.....					154,565	3,540	16	423		1.34		18.25

West Branch of Susquehanna River at Renovo, Pa.

Location.- Water-stage recorder, lat. 41°18'50", long. 77°44'45", at highway bridge at Renovo, Clinton County. Zero of gage is 633.99 feet above mean sea level (preliminary levels of 1927).

Drainage area.- 2,975 square miles.

Records available.- October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; July 1895 to December 1903, October 1905 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 27 years (1908-15, 1919-39), 4,724 second-feet.

Extremes.- Maximum discharge during year, 27,900 second-feet Feb. 16; maximum gage height, 10.42 feet Jan. 31 (affected by ice); minimum discharge, 94 second-feet Sept. 3 (gage height, -0.54 foot).

1895-1903, 1905-39: Maximum discharge, 236,000 second-feet Mar. 18, 1936 (gage height, 29.39 feet, from floodmark in gage shelter), from rating curve extended on basis of slope-area determination; minimum, 80 second-feet Dec. 6, 1908 (gage height, -1.10 feet).

Maximum flood known prior to 1895, 27.3 feet, from floodmark, June 1, 1889 (discharge, about 211,000 second-feet).

Remarks.- Records good except those for periods of ice effect, Nov. 24 to Dec. 4, Dec. 15 to Jan. 7, Jan. 14-31, which were computed on basis of gage heights, weather records, one discharge measurement, and records for stations at Bower and Williamsport, and are poor.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	238	275	440	350	10,200	17,300	19,500	3,590	1,570	2,840	365	96	
2	229	264	430	360	7,700	17,600	17,600	3,370	1,440	5,480	385	108	
3	219	253	420	390	7,340	14,000	15,600	3,370	1,360	2,380	365	98	
4	219	248	500	440	11,000	11,300	12,800	2,940	1,250	1,620	416	110	
5	201	258	1,570	550	9,550	10,600	10,600	2,640	1,170	1,510	570	150	
6	219	264	2,250	1,200	7,400	13,600	9,020	2,460	1,080	1,080	488	164	
7	298	280	2,670	3,000	6,650	16,400	9,020	2,280	971	1,060	378	196	
8	414	308	2,530	3,420	6,680	14,000	8,320	2,120	884	971	303	192	
9	414	297	1,960	3,050	6,180	11,300	7,100	2,040	865	884	264	196	
10	340	303	1,820	2,580	6,180	9,900	6,500	2,040	971	855	248	206	
11	297	327	1,830	2,500	7,510	8,150	6,050	2,040	971	1,050	238	214	
12	275	327	1,670	2,250	10,600	7,550	5,800	1,960	1,030	772	224	188	
13	264	314	1,640	2,000	8,500	11,300	5,420	1,790	938	648	209	171	
14	248	292	1,390	1,700	7,400	10,600	4,920	1,650	993	667	209	160	
15	238	292	1,200	1,300	12,800	11,000	5,050	1,560	1,080	842	224	153	
16	238	303	940	1,200	26,100	14,400	6,050	1,490	895	1,980	219	150	
17	243	292	760	1,300	18,200	14,400	7,250	1,470	752	1,200	209	153	
18	238	321	800	1,200	13,600	11,600	8,150	1,410	694	832	201	139	
19	229	596	820	1,000	11,300	9,200	8,320	1,510	703	658	219	129	
20	238	1,740	720	840	14,100	7,850	8,320	1,270	2,380	552	192	129	
21	243	1,820	630	800	26,100	7,250	7,550	3,200	2,940	488	188	136	
22	258	1,540	560	800	21,500	6,500	6,950	4,180	2,200	449	167	132	
23	280	1,270	500	700	16,200	5,800	6,200	5,050	1,760	406	160	123	
24	275	980	470	600	11,600	5,300	5,420	5,050	3,020	365	150	120	
25	258	750	480	500	9,200	5,300	4,920	4,060	3,440	346	139	118	
26	269	580	500	450	8,000	7,900	4,550	3,370	2,120	320	129	118	
27	269	470	500	420	8,500	10,200	4,920	2,840	1,560	314	129	129	
28	269	410	450	400	9,720	12,800	4,680	2,460	1,200	314	118	205	
29	275	370	410	450	15,600	4,180	2,800	2,200	1,020	297	112	508	
30	292	380	380	1,500	14,000	3,820	1,960	1,860	1,860	314	103	352	
31	286		360	8,000	20,500		1,750			314	101		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				8,273		414		201		267		0.090	0.10
November.....				16,094		1,820		248		536		.180	.20
December.....				31,390		2,670		360		1,013		.340	.39
Calendar year 1938.....				1,374,004		27,300		171		3,764		1.27	17.17
January.....				45,230		8,000		350		1,459		.490	.56
February.....				315,810		26,100		5,180		11,280		3.79	3.95
March.....				353,200		20,500		5,300		11,390		3.83	4.42
April.....				234,580		19,500		3,820		7,819		2.63	2.93
May.....				78,920		5,050		1,270		2,546		.856	.99
June.....				43,115		3,440		694		1,437		.483	.54
July.....				29,606		3,480		297		955		.321	.37
August.....				7,422		570		101		239		.080	.09
September.....				5,040		508		96		168		.056	.06
Water year 1938-39.....				1,168,680		26,100		96		3,202		1.08	14.60

West Branch of Susquehanna River at Williamsport, Pa.

Location.- Water-stage recorder, lat. 41°14'15", long. 76°59'55", at highway bridge at Williamsport, Lycoming County, 350 feet above mouth of Hageman Run. Zero of gage is 494.74 feet above mean sea level (general adjustment of 1929).
 Drainage area.- 5,682 square miles.
 Records available.- March 1895 to December 1913, October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; March 1895 to September 1939 in reports of Pennsylvania Department of Forests and Waters.
 Average discharge.- 44 years, 8,830 second-feet.
 Extremes.- Maximum discharge during year, 51,600 second-feet Feb. 21 (gage height, 12.30 feet); minimum, 333 second-feet Sept. 4 (gage height, -0.21 foot); minimum daily discharge, 378 second-feet Sept. 22-24, 26.
 1895-1939: Maximum discharge, 264,000 second-feet Mar. 18, 1936 (gage height, 33.57 feet, from floodmark in gage shelter), from rating curve extended on basis of slope-area determination; minimum, 231 second-feet Sept. 12, 13, 1932; minimum daily discharge, 250 second-feet June 30, July 10, 1912.
 Maximum flood known prior to 1895, 32.4 feet June 1, 1889 (discharge, about 252,000 second-feet).
 Remarks.- Records fair except those for periods of ice effect, Nov. 27 to Dec. 5, Dec. 25 to Jan. 6, Jan. 17 to Feb. 1, which were computed on basis of gage heights, weather records, one discharge measurement, and records for stations upstream. Slight regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	822	734	1,130	840	12,000	29,000	35,900	7,810	3,260	3,150	1,040	415
2	800	723	1,160	860	13,400	32,900	34,700	7,210	2,940	3,950	877	408
3	778	723	1,120	900	11,300	26,300	30,600	6,780	2,730	4,190	877	400
4	756	712	1,090	980	12,700	22,000	25,300	6,340	2,540	3,150	888	415
5	734	712	2,550	1,100	14,200	19,700	20,600	5,780	2,330	2,340	866	415
6	767	723	5,720	2,000	11,700	22,400	17,600	5,360	2,070	1,980	888	432
7	789	767	5,920	3,480	10,300	28,400	16,800	4,960	1,900	1,690	1,010	449
8	811	767	5,100	5,360	10,000	27,300	15,600	4,570	1,770	1,550	934	440
9	822	767	4,070	5,500	8,730	22,400	13,800	4,440	1,610	1,500	822	449
10	855	778	7,580	4,830	8,110	18,900	12,700	4,190	1,580	1,370	723	483
11	866	789	9,530	4,320	8,110	16,000	12,000	4,070	1,690	1,260	680	492
12	844	778	6,340	3,950	12,000	14,500	11,700	3,830	1,950	1,260	660	500
13	822	789	4,700	3,480	13,400	16,400	10,700	3,710	1,930	1,250	650	500
14	778	756	3,830	2,940	12,000	17,600	10,000	3,370	1,740	1,210	630	509
15	767	734	2,940	2,200	17,500	17,200	9,680	3,150	1,800	1,210	670	500
16	756	734	2,180	1,950	44,000	19,700	10,700	2,940	1,850	1,160	660	483
17	734	745	1,790	1,900	36,500	22,000	11,300	2,830	1,580	2,010	620	449
18	723	756	1,800	2,000	25,300	19,700	13,100	2,730	1,370	1,740	600	440
19	723	845	1,920	1,800	20,600	16,000	14,500	2,590	1,460	1,290	610	424
20	712	2,140	1,970	1,600	22,400	13,800	14,900	2,440	1,400	1,070	581	415
21	712	2,940	1,710	1,400	46,100	12,700	14,200	2,550	2,790	934	572	400
22	734	2,730	1,420	1,400	44,800	11,700	14,200	6,090	3,480	866	554	378
23	745	2,180	1,190	1,300	31,200	10,700	13,100	9,360	2,940	800	554	378
24	734	1,900	1,110	1,200	22,800	10,000	11,700	9,040	2,380	745	545	378
25	734	1,560	1,170	1,100	18,400	10,300	10,700	8,420	3,410	723	509	385
26	778	1,240	1,200	1,000	15,600	13,400	9,680	6,920	3,830	701	492	378
27	756	1,070	1,200	900	16,400	18,900	9,680	5,920	2,630	712	474	385
28	734	934	1,100	840	19,300	25,300	10,000	5,230	2,020	723	474	392
29	734	900	1,000	900	26,800	9,360	4,700	1,690	723	466	458	
30	745	1,000	930	2,000	26,300	8,730	4,190	2,140	1,100	449	731	
31	734		870	5,800	31,700		3,600		1,560	432		

Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....				23,799	866	712	768	0.135	0.16
November.....				32,926	2,940	712	1,098	.193	.22
December.....				85,340	9,530	870	2,753	.485	.56
Calendar year 1938.....				2,455,037	44,000	475	6,726	1.18	16.10
January.....				69,850	5,800	840	2,253	.397	.46
February.....				538,850	46,100	8,110	19,240	3.39	3.53
March.....				618,000	32,900	10,000	19,940	3.51	4.06
April.....				453,530	35,900	8,730	15,120	2.66	2.97
May.....				155,120	9,360	2,440	5,004	.881	1.02
June.....				66,810	3,830	1,370	2,227	.392	.44
July.....				47,717	4,190	701	1,539	.271	.31
August.....				20,807	1,040	432	671	.118	.14
September.....				13,281	731	378	443	.078	.09
Water year 1938-39.....				2,126,010	46,100	378	5,825	1.03	13.95

Clearfield Creek at Dimeling, Pa.

Location.- Water-stage recorder, lat. 40°58'15", long. 78°24'25", at highway bridge at Dimeling, Clearfield County, 400 feet below mouth of Little Clearfield Creek. Zero of gage is 1,145.54 feet above mean sea level (general adjustment of 1912).
 Drainage area.- 371 square miles.
 Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; October 1913 to September 1939 in reports of Pennsylvania Department of Forests and Waters.
 Average discharge.- 26 years, 575 second-feet.
 Extremes.- Maximum discharge during year, 4,290 second-feet Feb. 15 (gage height, 9.18 feet); minimum, 18 second-feet Oct. 1 (gage height, 3.21 feet).
 1913-39: Maximum discharge, 37,600 second-feet Mar. 18, 1936 (gage height, 18.49 feet, from floodmark in gage shelter), from rating curve extended above 6,000 second-feet; minimum, 6 second-feet Oct. 1, 9, 1926 (gage height, 3.15 feet); minimum daily discharge, 7.1 second-feet Oct. 1, 1925.
 Remarks.- Records good except those for periods of recorder failure, June 30, July 2-17 (computed on basis of partial gage record and record for station on West Branch of Susquehanna River at Bower), which are fair, and those for periods of ice effect, Nov. 24 to Dec. 5, Dec. 15 to Jan. 7, Jan. 13-30 (computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations), which are poor. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	19	33	52	39	1,280	3,580	2,070	493	120	1,220	61	26	
2	20	31	50	40	1,000	2,270	1,970	512	114	690	55	31	
3	27	28	49	42	1,630	1,550	1,460	412	136	450	48	29	
4	31	29	80	52	2,170	1,180	1,140	370	141	350	68	36	
5	26	34	200	110	1,310	1,220	940	342	116	300	50	50	
6	34	39	234	220	1,040	1,920	914	316	103	280	46	49	
7	38	38	177	360	875	1,800	1,110	301	89	250	42	55	
8	40	40	135	263	744	1,220	845	280	93	200	46	46	
9	38	42	111	180	733	1,000	738	280	126	420	39	35	
10	34	41	98	181	986	857	694	346	148	700	42	34	
11	33	38	94	160	2,070	711	672	312	130	400	42	29	
12	31	37	96	145	1,520	1,000	624	253	126	200	39	31	
13	30	41	85	125	1,140	1,140	587	234	107	130	42	29	
14	33	36	68	110	1,180	1,000	531	228	100	320	50	31	
15	31	40	58	100	2,940	1,380	592	244	96	500	48	35	
16	33	40	54	105	3,200	2,120	700	193	94	220	44	32	
17	31	40	52	120	1,770	1,640	988	170	78	160	40	33	
18	31	35	52	100	1,380	1,180	1,140	167	380	128	35	28	
19	28	54	50	85	1,260	857	1,080	150	1,300	116	33	27	
20	31	109	48	72	1,940	839	972	150	920	107	35	28	
21	31	120	47	63	2,140	839	833	167	662	98	31	25	
22	38	89	46	58	1,680	738	728	338	456	86	32	26	
23	29	62	45	53	1,140	667	624	444	1,960	78	32	26	
24	31	54	44	49	972	640	531	291	1,440	74	31	26	
25	31	48	44	46	728	672	470	234	728	68	28	26	
26	29	44	43	44	722	667	429	199	484	67	28	24	
27	31	42	42	43	1,040	634	456	177	354	66	32	24	
28	33	41	41	44	1,990	1,880	412	157	351	68	23	25	
29	27	47	40	55	1,500	391	148	433	68	27	23		
30	29	45	39	400	1,860	395	139	888	74	28	23	37	
31	31	39	39	1,700	2,970	2,970	124		64	25			
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				959		40		19		30.9		0.083	0.10
November.....				1,417		120		28		47.2		.127	.14
December.....				2,311		234		39		74.5		.201	.23
Calendar year 1938.....				142,965		3,330		16		392		1.06	14.33
January.....				5,164		1,700		39		167		.450	.52
February.....				40,580		3,200		722		1,450		3.91	4.07
March.....				41,531		3,580		634		1,340		3.61	4.16
April.....				25,036		2,070		391		835		2.25	2.51
May.....				8,161		512		124		263		.709	.82
June.....				12,273		1,960		78		409		1.10	1.23
July.....				7,952		1,220		64		257		.693	.80
August.....				1,222		68		23		39.4		.106	.12
September.....				954		55		23		31.8		.086	.10
Water year 1938-39				147,560		3,580		19		404		1.09	14.80

Sinnemahoning Creek at Sinnemahoning, Pa.

Location.- Water-stage recorder, lat. 41°18'45", long. 78°05'30", a quarter of a mile above mouth of Grove Run and 3,500 feet above Pennsylvania Railroad bridge at Sinnemahoning, Cameron County. Zero of gage is 768.99 feet above mean sea level (preliminary levels of 1930).

Drainage area.- 699 square miles.

Records available.- July 1938 to September 1939.

Extremes.- Maximum discharge during year, 8,120 second-feet Feb. 15; maximum gage height, 7.19 feet Jan. 30 (affected by ice); minimum discharge, 1.2 second-feet Sept. 4 (gage height, 1.18 feet); minimum daily discharge, 1.4 second-feet Sept. 3, 1938-39: Maximum and minimum discharges and gage heights, those of 1939.

Remarks.- Records good except those for periods of ice effect, Nov. 24 to Dec. 5, Dec. 15 to Jan. 6, Jan. 14-31, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Slight regulation from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	56	180	130	1,930	3,340	4,080	691	342	148	85	4.0
2	38	54	170	135	1,470	2,820	3,980	599	308	120	61	2.4
3	35	50	170	150	2,060	2,320	3,250	533	293	90	44	1.4
4	33	49	300	200	2,080	2,080	2,640	486	263	68	141	2.8
5	32	52	960	320	1,640	2,320	2,080	442	223	63	164	17
6	44	59	920	900	1,580	3,250	1,870	422	196	63	92	17
7	90	72	833	1,260	1,360	3,610	1,920	402	180	61	63	20
8	112	75	691	1,080	1,100	2,900	1,630	376	162	59	55	29
9	75	80	586	890	1,100	2,400	1,420	376	196	92	50	28
10	61	89	594	814	1,170	1,980	1,340	435	200	95	55	29
11	52	83	548	824	1,880	1,540	1,290	390	180	70	57	28
12	49	72	505	691	1,640	1,850	1,170	342	170	52	46	20
13	49	70	476	609	1,560	2,730	1,060	303	152	46	37	16
14	50	77	395	520	1,500	2,240	923	293	217	83	37	14
15	52	86	340	480	5,080	2,900	1,330	278	198	162	41	14
16	59	77	290	500	5,860	3,520	1,650	263	145	95	38	14
17	54	68	260	570	3,790	2,900	1,740	263	120	68	29	17
18	49	70	230	430	2,820	2,240	1,650	254	109	52	23	16
19	45	304	210	350	2,400	1,680	1,640	232	130	44	18	11
20	49	1,070	190	300	4,940	1,560	1,500	237	142	38	20	9.2
21	61	622	180	270	7,010	1,370	1,320	2,490	162	35	20	11
22	77	435	170	240	4,940	1,180	1,180	2,240	130	29	28	11
23	75	344	160	220	3,250	1,050	1,020	2,140	130	24	23	11
24	63	280	160	200	2,400	1,000	901	1,670	175	21	20	11
25	59	210	160	190	1,820	1,280	824	1,240	123	21	17	11
26	59	170	150	180	1,670	2,040	791	967	98	32	13	11
27	59	160	145	170	2,040	2,400	967	760	82	26	11	12
28	61	160	140	170	2,160	3,160	846	663	73	36	8.3	247
29	77	160	135	190		3,070	791	590	68	48	7.4	110
30	75	170	130	600		3,370	711	501	140	44	6.6	143
31	63		130	2,700		4,740		409		90	4.9	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				1,798	112	32	58.0	0.083	0.10			
November.....				5,324	1,070	49	177	.253	.28			
December.....				10,508	960	130	339	.485	.56			
Calendar year 1938												
January.....				16,283	2,700	130	525	.751	.87			
February.....				72,250	7,010	1,100	2,580	3.69	3.84			
March.....				74,840	4,740	1,000	2,414	3.45	3.98			
April.....				47,414	4,080	711	1,580	2.26	2.52			
May.....				21,287	2,490	232	687	.983	1.13			
June.....				5,107	342	68	170	.243	.27			
July.....				1,975	162	21	63.7	.091	.10			
August.....				1,315.2	164	4.9	42.4	.061	.07			
September.....				887.8	247	1.4	29.6	.042	.06			
Water year 1938-39				258,989.0	7,010	1.4	710	1.02	13.77			

Driftwood Branch of Sinnemahoning Creek at Sterling Run, Pa.

Location.- Staff gage, lat. 41°24'30", long. 78°11'25", 800 feet above highway bridge at Sterling Run, Cameron County, and 1,100 feet above mouth of Sterling Run. Zero of gage is 894.60 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.- 281 square miles.

Records available.- November 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; September 1913 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 20 years (1919-39), 441 second-feet.

Extremes.- Maximum discharge during year, 5,720 second-feet Feb. 15 (gage height, 5.9 feet, from graph based on gage readings); minimum daily discharge (estimated), 0.5 second-foot Sept. 2.

1913-39: Maximum discharge, 28,400 second-feet Mar. 17, 1936 (gage height, 12.0 feet, from graph based on gage readings), from rating curve extended on basis of slope-area determination; minimum observed, 0.4 second-foot Sept. 7, 12-14, 1930.

Remarks.- Records poor. Discharge for periods of ice effect, Nov. 25 to Dec. 4, Dec. 17 to Jan. 6, Jan. 18-31, Feb. 6-9, computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations. Discharge for periods of missing or questionable gage record, July 7, 8, 18-22, July 29 to Aug. 3, Aug. 27 to Sept. 3, computed on basis of records for station at Sinnemahoning. Gage read twice daily. Slight regulation from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	30	105	70	572	1,250	1,980	217	124	68	25	.6
2	22	29	100	73	448	1,040	1,750	198	113	40	20	.5
3	20	29	100	80	664	850	1,480	180	103	34	34	1.0
4	17	28	200	100	616	805	1,040	170	91	28	44	2.3
5	16	30	424	200	460	805	805	155	74	21	43	5.6
6	24	37	474	500	430	990	760	146	66	22	34	2.9
7	48	37	460	680	380	1,610	656	143	58	20	20	7.5
8	43	40	400	664	350	1,250	572	137	54	19	21	7.5
9	30	44	346	474	370	1,040	516	137	51	42	19	13
10	30	47	310	448	664	760	488	161	61	36	17	10
11	28	43	286	376	616	586	400	137	58	21	11	7.5
12	28	45	263	330	394	680	400	126	51	26	19	6.2
13	30	43	241	286	523	805	388	116	45	28	25	4.3
14	30	41	221	263	523	664	400	111	121	72	22	4.3
15	28	40	184	246	2,500	895	765	103	65	37	18	4.3
16	30	38	140	281	2,540	1,140	895	96	48	27	13	4.3
17	28	37	130	213	1,360	990	850	91	38	22	10	4.8
18	26	45	120	180	990	940	760	89	47	20	8.7	2.9
19	24	223	110	160	940	850	850	83	48	17	11	2.3
20	27	478	100	145	2,750	648	544	134	47	14	10	4.3
21	35	315	92	130	4,020	430	460	2,040	40	11	9.5	5.6
22	37	229	88	120	2,480	376	412	1,360	37	8.0	8.1	6.2
23	33	191	85	110	1,300	346	340	1,140	51	4.8	5.6	8.7
24	30	146	84	105	850	340	335	720	54	4.8	5.2	8.7
25	28	110	84	100	616	600	300	680	43	4.3	2.9	8.7
26	29	92	80	96	616	1,360	286	498	36	4.8	2.0	8.7
27	32	86	79	95	895	1,420	258	352	30	5.6	1.8	117
28	40	85	74	96	940	1,540	258	300	25	5.2	1.3	155
29	41	85	72	140	1,420	250	225	225	24	4.5	1.1	60
30	40	90	71	250	1,680	237	177	28	28	12	.9	146
31	34	70	850	850	2,140		146			29	.7	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				932	48	16	30.1	0.107	0.12			
November.....				2,813	478	28	93.8	.334	.37			
December.....				5,593	474	70	180	.641	.74			
Calendar year 1938.....				133,315.1	4,480	5.5	365	1.30	17.65			
January.....				7,860	850	70	254	.904	1.04			
February.....				29,807	4,020	350	1,065	3.79	3.95			
March.....				30,250	2,140	340	976	3.47	4.00			
April.....				19,435	1,980	237	648	2.31	2.58			
May.....				10,358	2,040	83	334	1.19	1.37			
June.....				1,731	124	24	57.7	.205	.23			
July.....				708.0	72	4.3	22.8	.081	.09			
August.....				463.8	44	.7	15.0	.053	.06			
September.....				620.7	155	.5	20.7	.074	.08			
Water year 1938-39				110,571.5	4,020	.5	303	1.08	14.63			

North Bald Eagle Creek at Beech Creek Station, Pa.

Location.- Water-stage recorder, lat. 41°03'55", long. 77°34'00", at highway bridge just below mouth of Beech Creek, at Beech Creek Station, Clinton County. Zero of gage is 571.79 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.- 559 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; June 1910 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 29 years, 787 second-feet.

Extremes.- Maximum discharge during year, 5,520 second-feet Feb. 15 (gage height, 6.17 feet); minimum, 68 second-feet Oct. 5, 14, 16 (gage height, 1.41 feet); minimum daily discharge, 97 second-feet Oct. 16.

1910-39: Maximum discharge, 22,300 second-feet Mar. 18, 1936 (gage height, 14.42 feet), from rating curve extended above 10,000 second-feet; minimum, 15 second-feet Jan. 9, 1931 (gage height, 1.12 feet); minimum daily discharge (estimated), 25 second-feet Jan. 22, 23, 1931.

Remarks.- Records fair. Discharge for period of recorder failure, Oct. 18, 19, computed on basis of daily gage readings. Discharge for periods of ice effect, Nov. 25 to Dec. 3, Dec. 24 to Jan. 5, Jan. 15-30, computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations. Some regulation at low stages from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	138	170	130	962	3,700	2,320	696	362	478	168	140
2	108	142	160	135	820	2,640	2,570	642	351	299	164	136
3	126	142	150	140	1,270	2,140	2,080	598	341	256	160	145
4	120	142	208	150	1,680	1,900	1,740	556	325	234	162	166
5	120	152	299	170	1,100	1,850	1,500	535	315	299	193	208
6	166	142	330	315	998	2,570	1,440	515	289	256	156	186
7	185	166	280	420	890	2,570	1,400	495	280	221	173	166
8	145	159	217	335	760	2,020	1,140	476	275	219	150	161
9	120	155	200	270	736	1,740	1,060	469	299	212	164	153
10	135	152	894	299	811	1,480	1,020	469	265	221	155	144
11	123	142	712	270	1,080	1,250	962	432	298	198	155	162
12	108	145	457	261	881	1,790	971	414	396	189	144	154
13	120	126	325	217	899	2,140	863	391	285	191	188	152
14	108	181	285	185	1,150	1,900	794	402	285	292	210	151
15	117	173	265	170	3,610	2,260	820	385	265	247	170	144
16	97	162	238	160	3,330	2,380	794	368	238	212	150	143
17	126	155	242	155	2,080	2,020	1,040	357	230	208	148	130
18	123	155	221	150	1,740	1,740	1,520	341	428	190	151	152
19	126	234	234	145	1,610	1,420	1,680	330	325	176	162	138
20	129	335	200	140	2,650	1,310	1,490	325	426	183	166	138
21	142	261	204	135	4,010	1,190	1,340	386	337	181	177	137
22	152	192	188	135	2,900	1,090	1,290	1,130	270	171	158	141
23	129	177	162	135	2,020	989	1,090	942	288	162	150	128
24	159	162	155	130	1,620	944	962	728	285	177	152	132
25	145	155	150	130	1,290	971	899	628	258	180	150	148
26	142	150	150	125	1,210	1,050	836	549	234	171	150	126
27	142	145	150	120	1,440	1,060	872	509	204	180	136	146
28	152	145	140	120	2,500	1,810	802	509	196	180	156	136
29	155	150	135	125	1,680	760	469	203	185	140	140	158
30	123	160	130	500	2,040	712	432	405	235	158	138	428
31	159		130	1,740		2,640		397		188	136	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					4,119	185	97	133	0.238		0.27	
November.....					4,995	335	126	166	.297		.33	
December.....					7,781	894	130	251	.449		.52	
Calendar year 1938					228,697	4,250	97	627	1.12		15.21	
January.....					7,612	1,740	120	246	.440		.51	
February.....					46,047	4,010	736	1,645	2.94		3.06	
March.....					56,184	3,700	944	1,812	3.24		3.74	
April.....					36,767	2,570	712	1,226	2.19		2.44	
May.....					15,875	1,130	325	512	.916		1.06	
June.....					8,938	428	196	298	.533		.59	
July.....					6,791	478	162	219	.392		.45	
August.....					4,931	210	136	159	.284		.33	
September.....					4,749	428	126	158	.283		.32	
Water year 1938-39					204,789	4,010	97	561	1.00		13.62	

Pine Creek at Cedar Run, Pa.

Location.- Water-stage recorder, lat. 41°31'20", long. 77°26'55", at highway bridge at Cedar Run, Lycoming County, about 2,000 feet below mouth of Cedar Run. Zero of gage is 781.96 feet above mean sea level (New York Central Railroad benchmark).

Drainage area.- 604 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; July 1918 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 20 years (1919-39), 746 second-feet.

Extremes.- Maximum discharge during year, 9,600 second-feet Feb. 20 (gage height, 6.32 feet); minimum, 8.0 second-feet Sept. 1-3 (gage height, 0.90 foot).

1918-39: Maximum discharge, 30,900 second-feet Mar. 18, 1936 (gage height, 11.39 feet), from rating curve extended on basis of slope-area determination; minimum, 5.1 second-feet Sept. 6, 1929 (gage height, 0.86 foot).

Remarks.- Records good except those for periods of ice effect, Nov. 24 to Dec. 5, Dec. 15 to Jan. 6, Jan. 14 to Feb. 15 (computed on basis of gage heights, weather records, and records for nearby stations), and those for period of missing gage record, June 8, 9 (computed on basis of records for nearby stations), all of which are poor.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	45	140	110	550	2,960	3,460	544	235	198	64	9.5
2	62	43	130	115	450	2,170	4,000	504	223	123	43	8.0
3	60	43	130	125	460	1,850	3,050	471	201	81	43	9.5
4	57	41	160	140	500	1,770	2,420	433	181	65	65	14
5	57	45	400	180	410	2,060	1,970	410	167	60	110	27
6	72	51	757	600	380	2,960	1,800	388	148	60	80	24
7	80	57	622	705	360	3,250	1,710	367	139	60	52	30
8	92	54	512	649	350	2,580	1,350	354	132	65	38	31
9	74	54	445	579	360	2,220	1,260	347	125	74	34	26
10	71	54	721	570	370	1,850	1,170	367	118	85	32	30
11	62	54	785	631	380	1,470	1,130	319	127	65	32	27
12	60	48	622	561	370	1,300	1,080	288	131	51	34	23
13	54	45	544	536	410	1,150	986	269	131	45	27	23
14	51	51	463	470	550	997	910	257	211	65	34	23
15	51	54	410	400	2,500	1,010	1,110	251	182	68	30	25
16	51	54	350	350	3,470	1,400	1,090	240	127	62	30	23
17	51	45	330	320	2,460	1,130	1,100	229	110	48	27	22
18	51	48	290	290	1,940	920	1,200	218	99	41	23	23
19	48	156	240	260	1,720	801	1,250	201	96	38	20	22
20	48	544	210	220	6,060	840	1,190	201	96	34	20	20
21	54	283	190	190	7,460	870	1,090	313	99	27	20	20
22	54	201	170	180	4,480	762	1,020	513	92	25	18	22
23	57	167	155	160	2,860	714	931	784	97	22	17	?
24	51	140	145	150	2,150	886	850	596	154	20	20	20
25	48	130	140	140	1,640	1,640	791	504	103	20	18	20
26	48	125	140	130	1,440	3,670	742	440	85	20	17	19
27	45	120	140	125	2,020	5,330	714	388	71	25	14	40
28	45	120	130	120	2,260	5,200	640	374	62	33	14	258
29	54	125	120	125		3,780	631	340	60	46	12	132
30	51	130	115	250		3,670	596	307	87	103	11	192
31	48		110	800		4,000		257		98	11	
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile	Run-off in inches		
October.....				1,772		92	45	57.2	0.095	0.11		
November.....				3,127		544	41	104	.172	.19		
December.....				9,819		785	110	317	.525	.61		
Calendar year 1938.....				241,372		5,240	37	661	1.09	14.87		
January.....				10,181		800	110	328	.543	.63		
February.....				48,360		7,460	350	1,727	2.86	2.98		
March.....				65,210		5,330	714	2,104	3.48	4.01		
April.....				41,241		4,000	596	1,375	2.28	2.54		
May.....				11,474		784	201	370	.613	.71		
June.....				3,889		235	60	130	.215	.24		
July.....				1,827		198	20	58.9	.098	.11		
August.....				1,010		110	11	32.6	.054	.06		
September.....				1,185.0		258	8.0	39.5	.065	.07		
Water year 1938-39				199,095		7,460	8.0	545	.902	12.26		

Lycoming Creek near Trout Run, Pa.

Location.— Water-stage recorder, lat. 41°25'05", long. 77°02'00", at highway bridge half a mile below mouth of Grays Run and 2 3/4 miles above Trout Run, Lycoming County. Prior to June 1, 1939, chain gage at same site and datum. Zero of gage is 693.76 feet (revised) above mean sea level (preliminary levels of 1935).

Drainage area.— 173 square miles.

Records available.— October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; December 1913 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 22 years (1914-16, 1919-39), 257 second-feet.

Extremes.— Maximum discharge during year, 2,770 second-feet Feb. 20 (gage height, 6.8 feet, from graph based on gage readings); minimum, 6.6 second-feet Sept. 26 (gage height, 1.53 feet).

1913-39: Maximum discharge, 17,000 second-feet Mar. 18, 1936 (gage height, 17.34 feet, from floodmarks), from rating curve extended on basis of slope-area determination; minimum, 3.2 second-feet Sept. 27, 1936; minimum daily discharge, 4.0 second-feet Sept. 19-24, 27, 28, 1936.

Remarks.— Records fair except those for periods of ice effect, Nov. 27 to Dec. 3, Dec. 17 to Jan. 5, Jan. 14-30, which were computed on basis of gage heights, weather records, and records for nearby stations, and are poor. Gage read twice daily prior to June 1.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	23	76	66	278	880	880	270	71	64	41	7.9
2	25	19	74	68	226	775	1,100	239	66	45	32	7.4
3	23	20	74	72	242	724	935	224	61	35	29	7.4
4	19	17	260	80	226	600	724	202	58	24	45	7.9
5	17	19	354	100	197	775	551	185	52	29	42	9.1
6	29	23	802	400	200	674	600	172	48	28	36	11
7	33	29	650	374	191	649	527	174	43	27	31	13
8	30	29	506	334	176	649	481	162	42	26	26	12
9	29	32	525	296	176	600	395	149	40	26	25	11
10	26	30	1,860	260	188	504	376	139	39	24	22	11
11	24	32	1,330	242	197	459	356	130	61	22	20	9.5
12	21	30	827	226	188	416	395	118	90	20	18	9.5
13	21	28	460	197	226	356	376	111	55	20	20	10
14	19	32	374	170	344	320	320	111	54	21	23	9.5
15	19	32	298	150	2,310	320	320	107	61	19	20	9.1
16	18	30	209	135	1,760	356	303	98	45	18	18	8.7
17	18	32	180	120	935	338	320	88	40	18	16	7.9
18	16	33	170	110	601	286	395	82	36	16	14	7.4
19	16	93	150	100	1,140	254	416	75	35	14	14	7.4
20	16	242	130	92	2,280	239	376	75	38	14	14	7.4
21	17	203	115	85	1,450	221	356	130	40	13	13	7.4
22	17	142	100	79	1,040	224	338	270	36	12	12	7.4
23	33	125	90	73	724	221	416	239	35	12	12	7.0
24	34	120	84	67	624	239	395	191	32	15	12	7.0
25	31	107	80	63	575	338	376	144	29	19	11	7.0
26	27	91	78	59	624	416	356	120	27	16	10	7.4
27	27	82	78	58	674	649	320	107	26	20	9.5	11
28	25	76	75	58	827	827	376	94	25	25	9.1	13
29	24	73	71	65	775	775	366	75	25	22	8.7	19
30	24	74	68	130	880	880	303	82	44	70	7.9	68
31	23		66	374	800			70		70	7.4	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				728	34	16	23.5	0.136	0.16			
November.....				1,918	242	17	63.9	.369	.41			
December.....				10,212	1,860	66	329	1.90	2.19			
Calendar year 1938				64,939.9	1,860	6.8	178	1.03	13.97			
January.....				4,703	400	58	152	.879	1.01			
February.....				18,629	2,310	176	665	3.84	4.00			
March.....				15,764	880	221	509	2.94	3.39			
April.....				13,738	1,100	303	458	2.65	2.96			
May.....				4,433	270	70	143	.827	.95			
June.....				1,344	90	25	44.8	.259	.29			
July.....				804	70	12	25.9	.150	.17			
August.....				618.6	45	7.4	20.0	.116	.13			
September.....				338.3	68	7.0	11.3	.065	.07			
Water year 1938-39				73,229.9	2,310	7.0	201	1.16	15.73			

Loyalsock Creek at Loyalsock, Pa.

Location.— Water-stage recorder, lat. 41°19'25", long. 76°54'40", at highway bridge at Loyalsock, Lycoming County, 2 1/2 miles below mouth of Wallis Run. Zero of gage is 585.63 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 443 square miles.

Records available.— October 1931 to September 1939 in reports of U. S. Geological Survey; July 1925 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 14 years, 688 second-feet.

Extremes.— Maximum discharge during year, 14,700 second-feet Dec. 10 (gage height, 8.61 feet), from rating curve extended above 3,300 second-feet; minimum, 12 second-feet Sept. 26 (gage height, 2.52 feet).

1925-39: Maximum discharge, 34,000 second-feet Nov. 16, 1926 (gage height, 12.3 feet), from rating curve extended above 8,000 second-feet; minimum, that of Sept. 26, 1939.

Remarks.— Records good except those for periods of ice effect, Nov. 26-30, Dec. 24 to Jan. 5, Jan. 16 to Feb. 14, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	139	160	376	250	900	3,600	1,740	808	228	366	226	22
2	130	146	352	250	750	2,480	2,480	702	223	237	164	22
3	120	136	328	250	800	1,860	2,060	630	201	162	149	21
4	108	133	1,780	260	900	1,600	1,600	574	189	127	157	29
5	106	139	2,250	270	800	1,570	1,340	525	164	117	134	33
6	111	209	4,670	1,430	750	2,060	1,290	484	145	97	124	31
7	130	290	2,600	1,590	640	1,980	1,540	451	142	91	107	29
8	149	265	1,740	1,280	540	1,420	1,220	413	131	85	91	29
9	136	270	1,350	1,040	500	1,290	1,080	401	120	94	79	26
10	120	295	6,750	930	500	1,190	991	407	114	76	79	24
11	108	265	4,180	930	540	970	930	360	117	70	76	22
12	106	238	2,480	817	520	900	991	321	196	62	70	21
13	103	229	1,810	702	530	871	980	295	219	57	65	21
14	98	229	1,410	630	560	766	862	285	183	67	76	21
15	98	225	1,130	581	3,140	758	930	275	265	57	79	19
16	92	208	853	470	3,870	980	991	251	189	57	79	19
17	89	196	808	450	2,480	1,000	871	237	145	49	67	18
18	89	200	750	410	1,840	766	950	223	131	47	57	17
19	87	514	678	370	1,590	678	1,010	210	120	40	52	16
20	87	2,150	609	330	3,940	686	1,040	201	117	37	52	16
21	98	1,260	553	310	4,090	654	940	248	124	35	49	14
22	152	905	518	300	2,740	638	1,460	426	120	31	44	13
23	149	723	425	280	1,980	581	1,380	1,300	110	29	42	13
24	136	604	330	260	1,660	646	1,170	790	97	26	42	13
25	186	518	320	250	1,330	912	1,020	581	88	39	40	13
26	220	440	320	240	1,390	1,210	910	458	94	40	31	13
27	185	380	320	230	2,830	1,290	826	383	82	116	33	31
28	174	330	300	230	2,980	1,600	1,270	343	70	142	31	56
29	181	330	270	240		1,520	1,110	300	70	127	29	122
30	181	340	260	500		1,700	940	275	234	349	26	165
31	174		250	1,300		2,140		246		457	22	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	4,042	220	87	130	0.293	0.34
November.....	12,327	2,150	133	411	.928	1.04
December.....	40,770	6,750	250	1,315	2.97	3.42
Calendar year 1938.....	211,234	6,750	48	579	1.31	17.73
January.....	17,380	1,590	230	561	1.27	1.46
February.....	45,090	4,090	500	1,610	3.63	3.78
March.....	40,316	3,600	581	1,301	2.94	3.39
April.....	35,922	2,480	826	1,197	2.70	3.01
May.....	13,403	1,300	201	432	.975	1.12
June.....	4,428	265	70	148	.334	.37
July.....	3,386	457	26	109	.246	.28
August.....	2,372	226	22	76.5	.173	.20
September.....	909	165	13	30.3	.068	.08
Water year 1938-39.....	220,345	6,750	13	604	1.36	18.49

Penn Creek at Penns Creek, Pa.

Location.- Water-stage recorder, lat. 40°51'35", long. 77°04'05", at bridge on State Highway 104, three-quarters of a mile northeast of Penns Creek, Snyder County. Zero of gage is 506.74 feet above mean sea level (preliminary levels of 1930).

Drainage area.- 301 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; October 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 10 years, 395 second-feet.

Extremes.- Maximum discharge during year, 3,530 second-feet Feb. 4 (gage height, 6.56 feet); minimum, 9.0 second-feet Sept. 19 (gage height, 0.91 foot); minimum daily discharge, 30 second-feet Sept. 24.

1929-39: Maximum discharge, 12,900 second-feet Sept. 16, 1934 (gage height, 13.00 feet), from rating curve extended above 6,000 second-feet; minimum, 7.0 second-feet Sept. 27, 1932; minimum daily discharge, 26 second-feet Nov. 28-30, 1930.

Remarks.- Records good except those for periods of ice effect, Nov. 26 to Dec. 4, Dec. 17 to Jan. 5, Jan. 14-30, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Regulation from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	55	90	74	853	1,880	1,100	518	188	117	125	38
2	59	59	84	78	658	1,470	1,430	467	206	106	89	38
3	59	56	82	88	1,030	1,240	1,210	427	203	92	82	45
4	56	58	160	110	1,650	1,100	1,070	403	194	93	95	42
5	77	55	291	180	1,070	1,140	975	388	188	120	85	57
6	77	86	496	510	915	1,470	975	361	170	164	78	67
7	87	69	371	447	807	1,280	1,010	349	156	115	68	72
8	71	67	281	384	712	1,100	807	338	148	96	70	63
9	76	71	241	354	660	1,040	740	320	159	89	77	52
10	63	60	1,060	342	680	945	712	312	156	83	61	44
11	60	54	1,160	322	784	837	675	301	145	92	58	45
12	66	61	740	296	645	1,070	756	273	167	72	55	44
13	59	56	553	264	635	1,100	650	276	164	74	50	77
14	52	59	452	230	707	1,010	590	290	162	87	59	74
15	50	63	380	200	1,470	1,040	610	273	147	134	60	69
16	58	61	312	170	2,140	1,180	595	252	138	97	59	60
17	58	56	270	150	1,470	1,070	696	246	124	65	51	47
18	56	51	230	140	1,240	945	702	235	124	80	40	40
19	64	98	200	130	1,140	825	712	226	142	66	60	35
20	56	249	180	120	1,280	807	696	229	156	66	122	47
21	65	179	160	110	1,400	762	660	239	145	64	75	37
22	59	135	140	100	1,320	724	885	383	122	70	67	39
23	59	114	120	93	1,070	670	784	365	124	64	52	37
24	67	95	110	86	975	645	734	305	127	59	49	30
25	66	76	100	80	837	660	702	270	113	57	54	40
26	65	70	96	74	837	696	665	252	97	60	43	35
27	58	66	98	70	1,010	685	645	235	110	76	43	40
28	54	66	87	68	1,470	975	585	235	95	85	46	38
29	54	70	80	72		885	562	226	96	65	33	42
30	59	80	76	370		975	522	210	113	279	51	57
31	58		72	1,200		1,180		194		194	38	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					1,933	87	50	62.4	0.207		0.24	
November.....					2,395	249	51	79.8	.265		.30	
December.....					8,772	1,160	72	283	.940		1.08	
Calendar year 1938.....					119,088	1,980	50	326	1.08		14.71	
January.....					6,912	1,200	68	223	.741		.85	
February.....					29,465	2,140	635	1,052	3.50		3.64	
March.....					31,406	1,880	645	1,013	3.37		3.88	
April.....					23,455	1,430	522	782	2.60		2.90	
May.....					9,398	518	194	303	1.01		1.16	
June.....					4,379	206	95	146	.485		.54	
July.....					2,981	279	57	96.2	.320		.37	
August.....					1,995	125	33	64.4	.214		.26	
September.....					1,451	77	30	48.4	.161		.18	
Water year 1938-39					124,542	2,140	30	341	1.13		15.39	

Mahantango Creek East near Dalmatia, Pa.

Location.- Water-stage recorder, lat. 40°36'40", long. 76°54'45", at highway bridge 2 miles above mouth and 3½ miles south of Dalmatia, Northumberland County. Zero of gage is 400.50 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.- 162 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; October 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 10 years, 210 second-feet.

Extremes.- Maximum discharge during year, 4,170 second-feet Dec. 6 (gage height, 7.98 feet); minimum, 4.3 second-feet Sept. 28 (gage height, 0.99 foot).

1929-39: Maximum discharge, 9,850 second-feet Aug. 24, 1933 (gage height, 13.66 feet), from rating curve extended above 3,000 second-feet; minimum, 1.5 second-feet Sept. 21, 1932 (gage height, 0.84 foot).

Remarks.- Records fair. Discharge for period of recorder failure, Oct. 31 to Nov. 7, computed on basis of range in stage shown by recorder graph and records for nearby stations. Discharge for periods of ice effect, Nov. 24 to Dec. 3, Dec. 27 to Jan. 5, Jan. 14-30, computed on basis of gage heights, weather records, and records for nearby stations. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	62	190	190	636	1,190	355	236	75	22	14	14
2	68	58	180	185	501	840	731	206	105	25	14	13
3	60	56	180	180	1,080	668	715	190	68	22	15	26
4	57	52	1,350	170	1,720	555	596	176	61	18	102	29
5	55	50	2,130	160	940	524	488	163	57	38	60	39
6	71	330	3,620	586	715	537	478	158	48	42	26	31
7	176	260	1,810	609	609	474	524	151	44	25	21	22
8	108	233	1,040	528	492	410	406	146	42	21	16	18
9	83	268	765	439	422	398	390	148	40	16	22	17
10	78	233	997	398	390	363	363	190	42	16	18	15
11	68	218	965	355	488	326	358	144	43	14	16	14
12	63	204	790	305	519	367	690	132	51	14	14	14
13	60	179	622	274	492	519	600	127	45	13	12	12
14	64	176	510	250	448	492	510	123	52	14	10	11
15	66	146	422	230	584	622	456	119	45	14	12	11
16	52	127	355	210	1,100	765	394	110	39	13	10	10
17	51	119	322	200	865	690	422	106	38	13	10	9.6
18	50	114	301	190	715	573	483	100	33	14	10	7.9
19	47	209	274	180	586	470	578	94	33	15	12	9.2
20	50	640	248	160	514	414	578	90	37	13	22	7.6
21	68	439	227	155	431	363	510	96	36	11	312	6.3
22	72	352	212	155	390	330	532	149	32	9.8	108	7.2
23	55	288	190	150	326	298	444	135	31	9.0	51	7.8
24	64	250	184	145	333	274	390	102	30	7.7	33	6.9
25	130	220	176	140	288	255	355	92	25	10	61	5.5
26	98	190	163	135	370	233	326	81	22	11	42	7.0
27	81	180	340	130	672	218	308	76	21	12	28	5.9
28	81	170	300	130	807	295	274	74	19	61	26	4.3
29	72	170	270	140		274	255	76	18	34	19	21
30	69	180	230	460		277	236	64	21	28	18	102
31	65		200	1,020		359		61		18	16	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				2,258	176	47	72.8	0.449	0.52			
November.....				6,173	640	50	206	1.27	1.42			
December.....				19,563	3,620	163	631	3.90	4.50			
Calendar year 1938				95,384	3,620	26	261	1.61	21.92			
January.....				8,549	1,020	130	276	1.70	1.96			
February.....				17,433	1,720	288	623	3.85	4.01			
March.....				14,373	1,190	218	464	2.86	3.30			
April.....				13,745	731	236	468	2.83	3.16			
May.....				3,915	236	61	126	.778	.90			
June.....				1,253	105	18	41.8	.258	.29			
July.....				581.5	51	7.7	18.8	.116	.13			
August.....				1,149	312	10	37.1	.229	.26			
September.....				504.2	102	4.3	16.8	.104	.12			
Water year 1938-39				89,496.7	3,620	4.3	245	1.51	20.57			

Frankstown Branch of Juniata River at Williamsburg, Pa.

Location.— Water-stage recorder, lat. 40°27'45", long. 78°12'00", at highway bridge at Williamsburg, Blair County, 2½ miles above mouth of Clover Creek. Zero of gage is 831.78 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.— 291 square miles.

Records available.— October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; October 1916 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 20 years (1919-39), 388 second-feet.

Extremes.— Maximum discharge during year, 6,850 second-feet June 23 (gage height, 10.20 feet); minimum daily discharge (estimated), 40 second-feet Dec. 29.

1916-39: Maximum discharge, 47,600 second-feet Mar. 18, 1936 (gage height, 18.58 feet, from floodmark in gage shelter), from rating curve extended on basis of slope-area determination; minimum, 13 second-feet July 24, 1934 (gage height, 0.97 foot); minimum daily discharge (estimated), 31 second-feet Dec. 24, 25, 1930.

Maximum stage known, 19.1 feet, from floodmark, June 1, 1889 (discharge, about 35,500 second-feet).

Remarks.— Records good except those for periods of ice effect, Nov. 24-29, Dec. 17 to Jan. 4, Jan. 15-30 (computed on basis of gage heights, weather records, one discharge measurement, and records for stations downstream), and those for period of missing gage record, Mar. 6-13 (computed on basis of records for stations downstream), all of which are poor. Regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	60	61	100	60	665	2,430	911	748	116	513	94	65			
2	60	62	88	64	536	1,280	960	625	194	346	88	64			
3	59	62	80	80	2,260	960	748	553	202	287	97	80			
4	60	62	119	100	2,780	793	644	504	183	252	579	76			
5	60	67	156	158	1,050	1,050	553	458	155	290	185	146			
6	67	81	154	264	726	1,300	635	414	142	484	131	85			
7	80	70	135	221	664	1,400	644	378	126	284	116	73			
8	68	67	110	177	662	1,250	504	349	123	228	216	71			
9	63	65	96	146	748	1,000	473	328	150	205	145	70			
10	62	66	267	139	1,170	840	488	315	124	170	112	64			
11	59	64	215	133	1,500	700	473	287	116	153	100	63			
12	60	61	152	120	951	660	520	262	107	142	97	64			
13	60	64	142	100	748	720	445	271	110	151	89	81			
14	61	63	106	89	726	832	414	323	158	615	85	72			
15	60	59	99	84	1,360	1,030	445	252	119	266	80	67			
16	59	60	81	100	1,320	1,220	451	231	104	183	79	62			
17	59	61	72	110	863	840	1,230	216	101	158	79	61			
18	58	63	68	105	726	684	1,890	205	207	145	78	58			
19	58	79	64	100	644	570	2,160	191	325	160	80	58			
20	64	141	60	96	726	553	1,330	189	480	136	89	59			
21	72	88	58	90	770	520	1,010	187	280	126	80	62			
22	68	73	56	82	664	473	863	211	488	118	74	61			
23	64	69	54	74	520	445	684	181	4,570	113	72	61			
24	65	64	52	70	473	414	588	160	1,360	110	72	57			
25	64	60	50	66	400	414	520	147	768	104	83	56			
26	63	58	46	62	428	400	488	140	520	101	74	56			
27	64	58	44	68	702	400	504	138	400	153	70	58			
28	62	62	42	80	2,200	638	428	162	341	203	66	81			
29	63	70	40	100		504	498	136	396	129	66	72			
30	63	81	46	600		772	551	129	685	131	66	161			
31	62		54	1,440		1,080		140		109	64				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				1,947		80		58		62.8		0.216		0.25	
November.....				2,061		141		58		68.7		.236		.26	
December.....				2,906		267		40		93.7		.322		.37	
Calendar year 1938.....				94,451		2,560		40		259		.890		12.07	
January.....				5,178		1,440		60		167		.574		.66	
February.....				26,982		2,780		400		964		3.31		3.45	
March.....				26,170		2,430		400		844		2.90		3.34	
April.....				22,048		2,160		414		735		2.53		2.82	
May.....				8,830		748		129		285		.979		1.13	
June.....				13,150		4,570		101		438		1.51		1.68	
July.....				6,565		513		101		212		.729		.84	
August.....				3,406		579		64		110		.378		.44	
September.....				2,164		161		56		72.1		.248		.28	
Water year 1938-39.....				121,407		4,570		40		333		1.14		15.52	

Juniata River at Mapleton Depot, Pa.

Location.— Water-stage recorder, lat. 40°23'30", long. 77°56'10" a quarter of a mile below mouth of Scrub Run and a third of a mile below highway bridge at Mapleton Depot, Huntingdon County. Zero of gage is 556.89 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.— 2,030 square miles.

Records available.— December 1937 to September 1939.

Extremes.— Maximum discharge during year, 19,800 second-feet Feb. 4 (gage height, 12.87 feet); minimum, 90 second-feet Oct. 2 (gage height, 1.35 feet); minimum daily discharge, 223 second-feet Oct. 14.

1937-39: Maximum discharge, that of Feb. 4, 1939; minimum, that of Oct. 2, 1938; minimum daily discharge, 223 second-feet Sept. 30, Oct. 14, 1938.

Maximum stage known, 38.2 feet, from floodmark, Mar. 18, 1936 (discharge, about 160,000 second-feet).

Remarks.— Records good except those for periods of ice effect, Nov. 25-29, Dec. 17 to Jan. 2, Jan. 19-29, which were computed on basis of gage heights, weather records, one discharge measurement, and records for stations upstream and downstream, and are poor. Regulation from operation of hydroelectric plants and mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	232	308	608	500	7,530	17,600	5,880	4,130	876	2,440	755	290
2	237	335	607	580	5,210	12,000	6,230	4,580	950	1,560	587	361
3	252	336	600	710	7,340	7,930	5,540	4,130	882	1,480	612	407
4	245	360	786	839	18,400	6,230	4,580	3,440	2,010	1,200	1,030	432
5	236	382	1,010	914	12,100	5,710	4,130	3,050	1,290	1,200	1,020	476
6	287	383	1,400	1,499	6,680	8,060	3,860	2,790	1,030	1,630	576	505
7	295	395	1,550	1,920	5,210	8,750	4,430	2,510	998	1,780	344	450
8	304	344	1,280	1,560	4,580	7,150	4,130	2,380	940	1,470	566	415
9	246	376	964	1,370	4,430	5,880	3,570	2,000	914	1,410	608	490
10	288	382	4,080	1,240	5,370	4,890	3,310	1,980	697	887	603	383
11	267	338	5,480	1,130	7,730	4,130	3,440	1,800	918	974	712	288
12	288	344	3,110	1,080	7,530	3,850	3,990	1,690	708	844	519	340
13	298	338	2,060	1,010	5,880	4,430	3,710	1,610	815	796	454	404
14	223	369	1,620	873	5,210	5,370	3,440	1,790	919	1,660	472	404
15	284	346	1,130	772	6,280	6,230	3,240	1,530	754	1,830	401	372
16	268	353	818	736	8,540	8,960	3,180	1,610	592	730	482	408
17	241	345	720	826	6,960	6,230	4,400	1,430	669	823	386	288
18	338	308	620	812	5,540	5,050	5,560	1,280	899	744	344	270
19	369	422	880	720	4,890	4,280	10,000	1,240	1,460	613	454	344
20	367	628	820	700	4,580	3,860	8,130	1,220	2,190	721	466	357
21	342	680	540	660	4,730	3,570	6,230	1,840	2,040	760	532	330
22	370	443	520	640	4,430	3,440	5,710	2,060	1,830	690	393	306
23	400	669	490	600	3,710	2,990	4,890	2,190	7,330	618	354	330
24	290	406	470	560	3,310	2,810	4,130	1,590	7,480	706	334	260
25	376	360	470	540	2,810	2,630	3,570	1,380	4,330	632	418	228
26	332	340	440	500	2,990	2,540	3,310	1,250	2,840	629	364	322
27	370	330	420	490	3,440	2,600	3,120	1,230	2,240	578	370	290
28	349	380	360	500	7,740	3,310	3,120	1,090	962	706	314	335
29	326	440	360	900		3,240	2,930	1,260	1,090	734	325	404
30	369	515	400	2,870		3,560	3,180	782	3,510	722	350	598
31	316		450	7,680		5,710		1,010		612	302	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				9,403	400	223	303	0.149	0.17			
November.....				11,960	680	306	399	.197	.22			
December.....				34,453	5,480	360	1,111	.547	.63			
Calendar year 1938.....				604,652	12,700	223	1,657	.811	11.09			
January.....				35,662	7,680	490	1,150	.566	.65			
February.....				173,350	18,400	2,810	6,191	3.05	3.18			
March.....				170,980	17,600	2,540	5,515	2.72	3.14			
April.....				137,930	10,000	2,930	4,598	2.26	2.52			
May.....				61,872	4,580	782	1,996	.983	1.13			
June.....				54,163	7,480	592	1,805	.889	.99			
July.....				32,179	2,440	578	1,038	.511	.59			
August.....				15,447	1,030	302	498	.245	.28			
September.....				11,087	598	228	370	.182	.20			
Water year 1938-39.....				748,486	18,400	223	2,051	1.01	13.70			

Juniata River at Newport, Pa.

Location.— Water-stage recorder, lat. 40°28'45", long. 77°07'45", at highway bridge at Newport, Perry County, 1,000 feet above mouth of Little Buffalo Creek. Zero of gage is 363.16 feet above mean sea level (general adjustment of 1912).

Drainage area.— 3,354 square miles.

Records available.— March 1899 to December 1913, October 1918 to September 1921, October 1923 to September 1926, October 1931 to September 1939 in reports of U. S. Geological Survey; March 1899 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 38 years (1899-1905, 1907-39), 4,413 second-feet.

Extremes.— Maximum discharge during year, 28,400 second-feet Feb. 4 (gage height, 12.08 feet); minimum, 322 second-feet Sept. 28 (gage height, 2.89 feet).

1899-1939: Maximum discharge, 215,000 second-feet Mar. 19, 1936 (gage height, 34.24 feet, from floodmark in gage shelter), from rating curve extended on basis of slope-area determination; minimum (estimated), 260 second-feet Aug. 27, 1925 (gage height, 2.71 feet); minimum daily discharge, 286 second-feet Sept. 28, 1932.

Maximum stage known, 35.9 feet, from floodmarks, June 1, 1889 (discharge, about 237,000 second-feet).

Remarks.— Records good except those for periods of ice effect, Nov. 27 to Dec. 4, Dec. 21 to Jan. 4, Jan. 18-29, which were determined on basis of gage heights, weather records, one discharge measurement, and records for stations upstream, and are fair. Discharge for period of recorder failure, Aug. 4, computed on basis of partial gage record and records for stations upstream. Slight regulation at low stages from operation of hydroelectric plants and mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	430	504	960	1,100	13,100	21,600	8,660	5,130	1,400	3,520	1,070	472
2	420	494	930	1,200	10,800	24,000	9,280	5,980	1,510	3,540	900	452
3	393	441	1,000	1,350	10,200	15,800	9,280	6,270	1,460	2,240	1,000	452
4	420	472	1,500	1,600	22,400	11,500	8,050	5,690	1,530	2,140	1,400	537
5	411	562	2,270	1,850	24,900	9,900	7,000	4,990	2,100	2,020	1,030	597
6	441	561	3,540	2,900	15,100	10,500	6,560	4,440	2,210	2,810	1,600	753
7	585	597	3,790	3,540	10,200	13,100	7,300	4,050	1,640	2,220	1,080	686
8	597	645	3,500	3,790	8,350	12,100	7,300	3,790	1,570	2,560	900	780
9	585	645	2,710	3,500	7,450	10,200	6,700	3,540	1,530	2,470	699	726
10	549	621	3,900	3,000	7,600	8,660	5,980	3,180	1,350	1,810	720	537
11	504	621	12,000	2,690	9,900	7,450	5,690	3,000	1,240	1,620	825	597
12	472	585	9,090	2,450	12,100	6,700	6,700	2,860	1,260	1,390	870	585
13	452	573	5,550	2,220	10,800	7,150	7,000	2,660	1,240	1,370	930	506
14	441	585	3,920	2,120	8,970	8,350	6,420	2,660	1,240	1,400	854	462
15	525	514	3,180	1,890	9,000	9,900	5,980	2,710	1,330	1,400	672	504
16	452	573	2,490	1,610	12,800	10,900	5,550	2,620	1,190	2,520	609	525
17	411	549	2,060	1,810	12,800	10,800	5,840	2,520	1,140	1,650	633	525
18	411	537	1,830	1,700	10,500	9,280	8,570	2,370	1,040	1,090	621	494
19	402	646	1,750	1,590	8,660	7,750	13,100	2,140	1,250	1,190	712	494
20	472	514	1,550	1,300	7,750	6,700	13,800	2,100	1,440	1,010	810	430
21	549	1,510	1,300	1,200	7,300	6,120	10,800	2,240	2,650	950	795	393
22	573	1,510	1,200	1,050	7,300	5,690	9,900	2,390	2,770	1,030	840	472
23	573	1,280	1,100	950	6,700	5,410	8,970	2,800	2,490	1,000	645	472
24	597	1,160	1,050	900	5,940	4,850	7,600	3,180	8,350	967	699	430
25	658	1,170	1,000	880	5,130	4,580	6,700	2,640	7,900	900	597	420
26	504	870	960	860	5,090	4,440	5,980	2,240	4,990	925	561	430
27	537	660	880	880	6,420	4,180	5,690	1,960	3,660	962	549	393
28	537	680	820	2,000	9,230	4,580	5,410	1,920	2,890	1,090	597	339
29	525	710	840	3,000	5,550	5,130	1,770	2,120	1,070	525	474	
30	525	810	900	5,020	5,420	4,990	1,770	1,570	1,530	483	608	
31	494		980	11,300	6,700			1,640		1,460	462	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	15,445	658	402	498	0.148	0.17
November.....	21,599	1,510	441	720	.215	.24
December.....	78,350	12,000	820	2,527	.753	.87
Calendar year 1938	993,299	20,600	402	2,721	.811	11.01
January.....	70,860	11,300	860	2,286	.682	.79
February.....	286,290	24,800	5,090	10,220	3.05	3.18
March.....	279,760	24,000	4,180	9,024	2.69	3.10
April.....	226,030	13,800	4,990	7,534	2.25	2.51
May.....	97,250	6,270	1,640	3,137	.935	1.08
June.....	68,060	8,350	1,040	2,269	.677	.76
July.....	51,854	3,540	900	1,673	.499	.58
August.....	24,688	1,600	462	796	.237	.27
September.....	15,545	780	339	518	.154	.17
Water year 1938-39	1,255,731	24,800	339	3,386	1.01	13.72

Little Juniata River at Spruce Creek, Pa.

Location.— Water-stage recorder, lat. 40°36'45", long. 78°08'35", 150 feet below Pennsylvania Railroad bridge, half a mile northwest of Spruce Creek, Huntingdon County, and half a mile above mouth of Spruce Creek. Zero of gage is 749.53 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.— 220 square miles.

Records available.— June 1938 to September 1939.

Extremes.— Maximum discharge during year, 2,970 second-feet Feb. 28 (gage height, 7.10 feet); minimum, 52 second-feet Oct. 31, Sept. 12 (gage height, 1.47 feet); minimum daily discharge (estimated), 60 second-feet Nov. 26, 27.

1938-39: Maximum discharge, that of Feb. 28, 1939; minimum, 52 second-feet Sept. 7, 28, Oct. 31, 1938, Sept. 12, 1939 (gage height, 1.47 feet); minimum daily discharge, that of Nov. 26, 27, 1938.

Maximum stage known, about 19.1 feet, from floodmark 175 feet downstream, Mar. 18, 1936 (discharge not determined).

Remarks.— Records good except those for periods of ice effect, Nov. 23-28, Jan. 21-28, which were computed on basis of gage heights, weather records, and records for nearby stations, and are fair. Some regulation from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	68	85	71	368	1,760	1,020	371	155	413	88	68
2	64	69	78	75	307	1,210	1,040	319	170	298	87	78
3	68	69	76	93	1,050	940	840	298	157	251	92	78
4	69	67	97	92	1,080	816	698	283	151	230	247	76
5	68	72	101	95	605	940	596	266	134	227	115	94
6	75	82	105	182	479	1,390	676	254	124	209	95	78
7	76	71	93	164	438	1,210	609	246	119	189	88	79
8	72	71	84	134	406	940	503	235	117	182	98	85
9	67	71	82	115	438	816	476	232	151	182	90	72
10	69	71	128	113	685	676	464	235	119	153	84	67
11	70	68	132	113	915	571	435	217	115	147	82	65
12	69	69	103	106	831	631	424	206	108	138	81	67
13	69	68	101	103	592	631	378	217	115	147	81	82
14	68	71	86	92	653	658	348	232	151	231	78	72
15	71	69	85	105	1,120	842	365	204	115	149	80	71
16	68	68	76	95	1,160	1,040	358	194	106	130	73	68
17	71	69	79	101	840	816	731	189	104	121	76	65
18	67	67	79	98	721	676	1,040	182	267	119	85	65
19	68	86	75	95	676	546	1,100	179	302	115	93	64
20	72	116	74	88	930	530	865	173	398	110	90	67
21	74	75	74	84	1,130	542	744	196	260	105	81	68
22	71	74	76	80	915	506	653	550	354	101	78	67
23	71	68	71	78	676	479	546	352	1,300	101	78	65
24	69	64	78	76	575	479	479	286	550	100	76	63
25	68	62	78	75	476	510	438	254	396	105	76	65
26	71	60	72	74	487	518	392	230	307	96	75	62
27	68	60	78	74	653	487	378	214	263	117	72	65
28	69	64	78	78	1,660	744	348	219	249	140	71	69
29	72	72	71	90		580	352	189	321	105	70	79
30	67	77	72	397		968	345	182	562	100	71	200
31	67		72	708		1,160		166		87	71	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					2,156	76	64	69.5	0.316		0.36	
November.....					2,138	116	60	71.3	.324		.36	
December.....					2,639	132	71	85.1	.387		.45	
Calendar year 1938												
January.....					3,944	708	71	127	.577		.67	
February.....					20,666	1,660	307	738	3.35		3.49	
March.....					24,612	1,760	479	794	3.61		4.16	
April.....					17,641	1,100	345	588	2.67		2.98	
May.....					7,570	550	166	244	1.11		1.28	
June.....					7,740	1,300	104	258	1.17		1.30	
July.....					4,898	413	87	158	.718		.83	
August.....					2,722	247	70	87.8	.399		.46	
September.....					2,264	200	62	76.5	.343		.38	
Water year 1938-39					98,990	1,760	60	271	1.23		16.72	

Standing Stone Creek near Huntingdon, Pa.

Location.— Water-stage recorder, lat. 40°31'25", long. 77°58'15", at bridge on State Highway 545, 3½ miles northeast of Huntingdon, Huntingdon County, and 3¼ miles above mouth. Zero of gage is 617.61 feet above mean sea level (preliminary levels of 1924-25).

Drainage area.— 128 square miles.

Records available.— October 1931 to September 1939 in reports of U. S. Geological Survey; October 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.— Maximum discharge during year, 2,000 second-feet Feb. 4 (gage height, 5.83 feet); minimum, 7.8 second-feet Sept. 25, 26 (gage height, 1.45 feet).

1929-39: Maximum discharge, 5,500 second-feet Mar. 18, 1936 (gage height, 9.14 feet), from rating curve extended above 1,500 second-feet; minimum, 2.8 second-feet Feb. 11, 1931 (gage height, 0.64 foot); minimum daily discharge, 7.6 second-feet Sept. 12-14, 18-26, 1932.

Maximum stage known, 9.38 feet, from floodmark, June 1, 1889 (discharge, about 5,920 second-feet).

Remarks.— Records good except those for periods of ice effect, Nov. 24-28, Dec. 15 to Jan. 4, Jan. 14-30, Feb. 23, 24, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	21	40	32	351	960	356	205	61	63	20	11
2	16	20	38	36	249	516	420	172	62	43	16	14
3	19	20	35	45	746	390	327	157	61	54	14	16
4	26	23	59	60	1,000	331	285	145	61	31	29	15
5	17	24	96	82	390	345	253	135	56	33	34	32
6	19	28	190	170	282	535	276	128	49	39	18	29
7	25	30	109	145	243	464	331	122	45	32	17	18
8	23	28	67	115	207	352	246	115	44	31	17	17
9	20	26	56	95	219	320	251	111	49	29	15	15
10	18	24	1,030	89	371	282	222	107	44	28	15	15
11	18	27	424	88	480	243	207	99	43	25	14	15
12	18	24	207	79	327	249	272	91	72	21	12	16
13	18	21	149	59	269	278	213	89	51	26	12	15
14	18	23	117	52	282	265	182	105	51	34	13	16
15	18	28	70	50	631	375	185	89	43	34	14	16
16	18	24	46	58	679	488	177	82	39	23	12	13
17	19	21	42	71	401	375	263	79	38	21	12	12
18	19	20	39	66	338	292	327	75	47	22	12	13
19	20	33	36	62	299	243	285	70	54	19	18	12
20	23	96	34	58	323	225	243	75	77	20	29	9.8
21	27	43	33	52	327	213	219	185	54	20	29	9.8
22	30	29	32	47	313	205	351	364	41	18	21	14
23	23	23	30	43	260	191	262	219	80	18	14	13
24	23	21	29	40	240	188	234	149	56	20	13	9.1
25	23	20	28	38	227	199	216	115	40	20	13	7.8
26	23	19	27	36	241	202	202	99	35	17	13	8.4
27	23	19	27	36	401	195	257	88	33	17	12	12
28	22	20	26	40	835	355	205	84	32	26	12	12
29	23	23	26	45		292	213	79	32	27	13	15
30	25	29	27	300		339	193	70	21	21	12	28
31	22		29	753		444		64		21	10	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	651	30	15	21.0	0.164	0.19
November.....	807	96	19	26.9	.210	.23
December.....	3,198	1,030	26	103	.805	.93
Calendar year 1938	42,431	1,130	15	116	.906	12.35
January.....	2,942	753	32	94.9	.741	.85
February.....	10,931	1,000	207	390	3.05	3.18
March.....	10,349	960	188	334	2.61	3.01
April.....	7,653	420	177	255	1.99	2.22
May.....	3,767	364	64	122	.953	1.10
June.....	1,547	97	32	51.6	.403	.45
July.....	833	63	17	26.9	.210	.24
August.....	505	34	10	16.3	.127	.15
September.....	448.9	32	7.8	16.0	.117	.13
Water year 1938-39	43,631.9	1,030	7.8	120	.938	12.68

Raystown Branch of Juniata River at Saxton, Pa.

Location.— Water-stage recorder, lat. 40°12'55", long. 78°15'55", at highway bridge half a mile west of Saxton, Bedford County, and 1½ miles above mouth of Shoup Run. Zero of gage is 794.73 feet above mean sea level (preliminary levels of 1910).

Drainage area.— 756 square miles.

Records available.— October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1911 to September 1939 in reports of Pennsylvania Department of Forests and Waters. Records prior to October 1931 obtained at a site 0.8 mile downstream.

Average discharge.— 28 years, 936 second-feet.

Extremes.— Maximum discharge during year, 12,300 second-feet Feb. 4 (gage height, 9.34 feet); minimum, 85 second-feet Nov. 13, 19 (gage height, 1.07 feet).

1911-39: Maximum discharge, 80,500 second-feet Mar. 18, 1936 (gage height, 24.54 feet, from floodmark in gage shelter), from rating curve extended on basis of slope-area determination; minimum, 52 second-feet Oct. 17, 18, 1930.

Maximum flood known prior to 1911, 23.0 feet, from floodmark at present site, June 1, 1889 (discharge, about 71,300 second-feet).

Remarks.— Records good except those for periods of ice effect, Nov. 24-29, Dec. 16 to Jan. 2, Jan. 19-31, which were computed on basis of gage heights, weather records, and records for nearby stations, and are poor. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	102	183	160	3,400	9,380	2,210	2,370	249	807	238	110
2	104	99	210	180	2,210	4,470	2,330	2,450	326	661	191	107
3	99	96	254	219	3,960	2,930	1,980	1,980	1,100	509	171	107
4	104	96	244	280	10,800	2,270	1,650	1,640	807	415	167	125
5	102	99	285	439	5,060	2,160	1,460	1,380	605	526	214	159
6	110	107	679	670	2,870	3,470	1,380	1,180	477	926	274	148
7	110	99	699	709	2,210	3,580	1,820	1,030	393	869	191	200
8	104	118	493	624	2,040	2,750	1,500	910	331	587	187	159
9	107	125	354	535	1,980	2,150	1,330	818	299	485	278	131
10	102	115	2,890	469	2,400	1,820	1,320	748	293	429	314	125
11	107	110	2,400	445	3,580	1,470	1,500	680	293	357	210	115
12	102	104	1,170	393	3,320	1,530	1,610	615	293	312	171	115
13	102	100	797	551	2,610	2,080	1,610	570	254	282	151	113
14	104	104	595	525	2,040	2,510	1,430	615	244	506	141	113
15	102	104	469	269	2,210	2,210	1,390	709	249	633	138	110
16	104	102	325	282	3,260	2,330	1,390	544	254	532	134	110
17	104	99	260	345	2,510	2,090	2,960	477	224	371	131	113
18	110	91	220	293	2,040	1,760	4,910	445	274	299	128	107
19	104	105	220	270	1,700	1,520	4,590	415	696	299	134	110
20	104	152	300	250	1,600	1,350	3,260	400	1,480	331	134	102
21	113	184	190	240	1,430	1,230	2,510	667	1,240	299	128	102
22	104	191	170	270	1,460	1,060	2,210	758	1,570	249	141	102
23	107	167	160	260	1,190	973	1,820	661	4,580	229	131	99
24	104	150	150	230	952	838	1,520	561	3,000	214	125	99
25	118	150	150	210	869	767	1,320	437	1,820	205	118	94
26	110	140	160	190	838	728	1,190	379	1,260	191	113	99
27	110	130	170	170	1,470	670	1,260	344	931	187	115	96
28	104	150	150	160	3,830	818	1,180	325	758	187	115	96
29	102	140	140	150		1,450	1,120	325	709	268	118	99
30	102	168	130	700		1,190	1,700	299	748	260	113	145
31	96		145	5,000		2,190		271		386	110	
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....				3,262		118	96	105	0.139		0.16	
November.....				3,678		191	91	123	.163		.18	
December.....				14,073		2,400	130	454	.601		.69	
Calendar year 1938				201,378		5,240	88	552	.750		9.89	
January.....				15,088		5,000	150	487	.644		.74	
February.....				75,539		10,800	838	2,626	3.47		3.61	
March.....				65,514		9,380	670	2,113	2.79		3.22	
April.....				57,460		4,910	1,120	1,915	2.53		2.82	
May.....				25,003		2,450	271	807	1.07		1.23	
June.....				25,727		4,580	224	858	1.13		1.26	
July.....				13,011		926	187	420	.556		.64	
August.....				5,024		314	110	162	.214		.25	
September.....				3,510		200	94	117	.155		.17	
Water year 1938-39.				304,889		10,800	91	835	1.10		14.97	

Dunning Creek at Belden, Pa.

Location.- Water-stage recorder, lat. 40°04'20", long. 78°29'35", at highway bridge three-quarters of a mile southeast of Belden, Bedford County, and 3 3/4 miles north of Bedford. Zero of gage is 1,040.93 feet above mean sea level (preliminary levels of 1935).

Drainage area.- 172 square miles.

Records available.- May to September 1939.

Extremes.- Maximum discharge during period, 2,020 second-feet June 22 (gage height, 7.03 feet); minimum, 14 second-feet Sept. 24-27 (gage height, 1.28 feet).

Maximum stage known, 17.8 feet, from floodmarks, Mar. 18, 1936 (discharge not determined; affected by backwater from Raystown Branch of Juniata River).

Remarks.- Records good except those for period of recorder failure, June 20-22, which were computed on basis of records for station at Yount, and are fair. Some regulation at low stages from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									43	208	39	19
2									112	156	37	27
3									124	126	45	23
4									86	111	195	22
5									64	219	77	63
6									51	212	51	32
7									44	129	47	24
8									43	109	186	22
9									43	97	95	19
10									40	79	62	23
11									43	69	48	21
12									37	59	40	20
13									39	97	37	23
14									64	358	33	23
15									44	156	31	22
16									37	116	28	19
17									33	92	27	17
18									240	97	27	15
19									465	106	36	18
20								78	500	75	36	18
21								111	300	66	29	15
22								142	1,000	59	25	15
23								99	1,370	64	23	15
24								82	562	50	23	15
25								69	334	48	28	14
26								64	240	45	25	14
27								62	186	103	22	15
28								69	177	75	20	17
29								57	211	65	20	26
30								51	289	72	19	77
31								47		46	19	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....												
November.....												
December.....												
Calendar year 1938												
January.....												
February.....												
March.....												
April.....												
May...20-31.....					931	142	47	77.6	0.451	0.20		
June.....					6,821	1,370	33	227	1.32	1.47		
July.....					3,356	358	45	108	.628	.72		
August.....					1,430	195	19	46.1	.268	.31		
September.....					687	77	14	22.9	.133	.15		
Water year 1938-39												

Dunning Creek at Yount, Pa.

Location.- Chain gage, lat. 40°03'30", long. 78°28'30", at highway bridge at Yount, Bedford County, 3 miles above mouth and 3 1/4 miles northeast of Bedford. Zero of gage is 1,046.43 feet above mean sea level (preliminary levels of 1935).

Drainage area.- 191 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; November 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters (discontinued).

Extremes.- Maximum discharge during year, 3,900 second-feet Feb. 4 (gage height, 8.3 feet, from graph based on gage readings), from rating curve extended above 1,700 second-feet; minimum observed, 14 second-feet Oct. 4 (gage height, 0.52 foot); minimum daily discharge, 16 second-feet Oct. 3-5.

1929-39: Maximum discharge (estimated), 17,900 second-feet Mar. 18, 1936 (gage height, 18.08 feet, from floodmark, affected by backwater from Raystown Branch of Juniata River); minimum, 4.9 second-feet July 28, 1930 (gage height, 0.46 foot).

Remarks.- Records fair except those for periods of ice effect, Nov. 25-29, Dec. 16 to Jan. 1, Jan. 14-30 (computed on basis of gage heights, weather records, two discharge measurements, and records for nearby stations), and those for periods of missing or questionable gage heights, May 23-25, Sept. 5, 29, 30 (computed on basis of records for nearby stations), all of which are poor. Gage read twice daily. Slight regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	20	41	30	727	1,920	577	788	48	223	42	19
2	19	19	39	33	508	936	577	613	118	157	40	33
3	16	19	38	57	2,130	613	443	475	129	129	46	26
4	16	19	60	116	2,690	508	382	368	88	114	201	23
5	16	23	83	147	893	850	325	298	68	235	74	63
6	19	24	98	200	613	1,200	368	247	55	223	53	29
7	23	24	83	178	542	1,020	368	212	45	131	52	27
8	25	24	64	157	508	650	298	189	47	114	200	23
9	20	21	57	129	577	508	285	178	45	97	97	20
10	19	20	161	118	1,070	368	382	153	44	86	63	27
11	19	20	98	105	1,250	312	298	133	47	78	49	23
12	19	20	81	92	808	298	353	122	40	62	42	22
13	18	20	83	77	577	577	285	126	43	74	36	26
14	19	22	59	68	542	475	285	147	67	333	33	26
15	18	21	53	58	928	508	325	129	47	157	31	24
16	17	21	50	52	980	613	298	107	41	113	30	21
17	17	22	48	54	613	508	1,080	97	37	95	29	20
18	17	22	47	56	508	397	1,750	90	265	92	26	18
19	17	27	45	52	412	339	1,300	86	510	105	38	18
20	20	49	40	48	412	298	850	82	542	76	38	17
21	23	38	36	45	542	247	613	120	298	67	30	18
22	22	27	34	46	443	223	508	178	1,100	60	28	18
23	20	25	32	49	325	200	368	110	1,500	55	26	17
24	21	25	32	47	272	178	298	80	620	51	24	19
25	20	27	31	43	212	168	247	75	443	49	28	19
26	20	24	34	38	247	155	285	70	285	44	26	18
27	20	22	40	34	523	156	298	64	212	92	23	20
28	20	23	33	31	1,620	312	223	74	200	72	23	19
29	21	26	28	30		218	395	62	220	62	23	26
30	20	32	28	300		376	413	56	285	71	20	80
31	19		29	1,800		577		51		49	20	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	597	25	16	19.3	0.101	0.12
November.....	726	49	19	24.2	.127	.14
December.....	1,685	161	28	54.4	.285	.33
Calendar year 1938.....	52,089	2,160	12	143	.749	10.15
January.....	4,290	1,800	30	138	.723	.83
February.....	21,472	2,690	212	767	4.02	4.19
March.....	15,708	1,920	155	507	2.65	3.06
April.....	14,477	1,750	223	483	2.53	2.82
May.....	5,580	788	51	180	.942	1.09
June.....	7,489	1,500	37	250	1.31	1.46
July.....	3,566	333	44	109	.571	.66
August.....	1,491	201	20	48.1	.252	.29
September.....	759	80	17	25.3	.132	.15
Water year 1938-39.....	77,640	2,690	16	213	1.12	15.14

Brush Creek at Gapsville, Pa.

Location.- Water-stage recorder and concrete control, lat. 39°57'20", long. 78°15'15" at highway bridge three-quarters of a mile northwest of Gapsville, Bedford County, and 5½ miles above confluence with Shaffer Creek. Zero of gage is 1,122.39 feet above mean sea level (general adjustment of 1929).

Drainage area.- 36.8 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; November 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.- Maximum discharge during year, 845 second-feet Dec. 10 (gage height, 5.29 feet); minimum, 1.5 second-feet Sept. 28 (gage height, 1.51 feet).
1929-39: Maximum discharge, 6,870 second-feet Mar. 17, 1936 (gage height, 9.81 feet), from rating curve extended above 2,600 second-feet; minimum, 0.2 second-foot Aug. 28, Sept. 12, 20-23, 1932.

Remarks.- Records fair except those for periods of ice effect, Dec. 27-31, Jan. 18-30, which were computed on basis of gage heights, weather records, and records for nearby stations, and are poor. Regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.9	3.1	21	18.3	120	249	72	62	15.3	26	12.3	2.3
2	3.1	2.7	20	21	108	177	82	56	78	21	10.5	2.2
3	4.9	2.5	17.5	26	275	138	77	55	57	17.9	8.3	2.3
4	3.9	2.2	26	34	289	113	72	54	46	25	11.2	6.9
5	3.4	4.3	44	49	186	127	67	49	37	126	8.3	16.7
6	3.7	6.3	73	67	145	135	76	48	30	92	7.5	4.6
7	4.1	5.4	57	62	121	120	77	45	26	73	7.2	4.4
8	2.9	4.6	45	62	101	105	71	41	23	60	11.7	4.5
9	2.9	4.8	39	54	95	96	72	40	22	47	8.8	3.7
10	2.7	3.7	397	54	108	85	77	37	36	38	7.6	3.4
11	2.6	4.1	182	49	137	77	79	34	28	31	5.6	3.4
12	3.2	4.1	132	44	126	82	104	31	22	26	5.2	3.1
13	2.7	3.0	101	37	117	110	100	32	18.3	36	4.6	3.0
14	5.5	3.6	77	43	105	108	95	34	22	41	4.5	3.3
15	6.1	2.6	65	35	124	103	88	29	17.5	26	3.4	3.1
16	3.3	3.0	52	32	121	108	94	27	14.7	21	3.4	3.0
17	3.7	3.0	45	29	110	103	140	26	12.9	18.3	3.7	2.6
18	3.1	5.2	40	27	104	95	157	24	71	22	3.7	2.3
19	3.5	7.4	37	25	90	84	164	23	71	23	6.1	2.0
20	3.7	20	31	23	80	77	140	23	62	17.5	6.0	1.8
21	4.6	12.6	30	22	69	69	120	24	46	15.5	6.9	1.8
22	5.3	10.0	27	23	64	62	114	23	48	14.3	3.7	1.9
23	2.9	9.1	24	24	55	55	95	23	130	13.3	3.7	1.8
24	3.0	9.4	24	23	51	49	86	21	76	11.9	3.9	1.8
25	4.7	9.9	23	21	43	46	79	18.3	58	11.8	4.2	1.8
26	3.1	9.4	20	20	61	43	73	17.1	45	10.3	3.4	1.7
27	3.5	9.4	21	18	90	40	68	16.3	36	22	3.0	1.6
28	3.5	8.9	18	17	247	65	62	15.9	34	13.6	3.0	1.5
29	2.9	9.6	17	16		53	65	14.7	33	30	3.0	11.4
30	2.4	13.8	16	70		58	61	13.3	29	26	2.4	64
31	3.6		16	164		67		12.6		15.5	2.3	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					111.4	6.1	2.4	3.59	0.098		0.11	
November.....					197.7	20	2.2	6.59	.179		.20	
December.....					1,737.5	397	16	56.0	1.52		1.75	
Calendar year 1938					11,209.6	397	1.0	30.7	.834		11.32	
January.....					1,209.3	164	16	39.0	1.06		1.22	
February.....					3,342	289	43	119	3.23		3.36	
March.....					2,899	249	40	93.5	2.54		2.93	
April.....					2,727	164	61	90.9	2.47		2.76	
May.....					969.2	62	12.6	31.3	.851		.98	
June.....					1,244.7	130	12.9	41.5	1.13		1.26	
July.....					971.9	126	10.3	31.4	.853		.98	
August.....					179.1	12.3	2.3	5.78	.157		.18	
September.....					167.8	64	1.5	5.59	.152		.17	
Water year 1938-39					15,756.6	397	1.5	43.2	1.17		15.90	

Great Trough Creek near Marklesburg, Pa.

Location.- Water-stage recorder and concrete control, lat. 40°21'00", long. 78°07'50", at highway bridge half a mile above mouth and 3 miles southeast of Marklesburg, Huntingdon County. Zero of gage is 714.48 feet above mean sea level.

Drainage area.- 84.6 square miles.

Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; January 1930 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.- Maximum discharge during year, 1,140 second-feet Feb. 3 (gage height, 3.89 feet); minimum, 2.0 second-feet Sept. 27 (gage height, 0.53 foot); minimum daily discharge, 2.2 second-feet Sept. 28.

1930-39: Maximum discharge, 9,580 second-feet Mar. 17, 1936 (gage height, 8.46 feet), from rating curve extended above 600 second-feet; minimum, 0.6 second-foot Sept. 22, 23, 1932, Sept. 3, 1934.

Remarks.- Records fair except those for periods of recorder failure, Oct. 5-8, Feb. 18-24, Mar. 13-15, Apr. 29 to May 3, Aug. 23 to Sept. 13 (computed on basis of range in stage shown by recorder graph and records for nearby stations), and those for periods of ice effect, Nov. 28-29, Dec. 14-31, Jan. 14-30 (computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations), all of which are poor. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	4.6	4.6	31	23	332	623	180	170	28	58	11.7	2.9	
2	4.4	4.2	36	28	235	415	227	160	36	41	9.2	2.8	
3	3.8	4.0	28	54	685	313	187	145	42	30	10.0	3.0	
4	3.6	3.6	40	52	760	252	163	133	40	25	9.5	4.0	
5	3.6	4.4	80	58	415	277	148	120	32	45	9.5	30	
6	5.5	7.5	107	138	308	351	164	107	28	104	9.5	15	
7	14	10.3	78	107	243	300	205	98	25	59	7.7	11	
8	12	7.7	54	87	208	235	157	92	21	50	6.2	10	
9	8.2	6.7	42	76	205	208	151	85	20	48	9.5	11	
10	6.0	6.2	580	69	254	180	148	80	19.0	39	7.4	9.0	
11	5.5	6.4	406	67	346	154	151	72	17.7	32	6.7	7.0	
12	5.2	6.2	189	60	269	142	216	67	22	29	6.2	6.0	
13	4.8	5.2	122	55	227	270	180	67	22	28	5.0	5.4	
14	5.5	5.5	85	50	216	240	160	80	22	49	4.8	6.0	
15	4.6	5.0	70	45	334	250	154	67	20	39	4.8	6.0	
16	5.0	5.0	60	46	430	318	157	61	15.8	25	4.8	5.7	
17	5.0	4.6	52	48	318	256	336	56	14.3	22	4.6	5.0	
18	4.6	4.2	52	44	270	205	346	52	14.3	19.3	4.6	4.6	
19	3.6	7.0	45	41	230	180	308	50	19.4	22	5.0	4.0	
20	4.3	41	40	38	195	163	248	47	35	22	6.9	3.4	
21	6.4	30	34	39	190	145	208	58	30	17.1	7.4	3.4	
22	7.4	18.0	28	43	195	130	243	64	102	14.3	5.7	3.2	
23	7.2	14.3	25	40	130	115	187	60	323	13.4	5.0	3.2	
24	6.0	10.4	27	36	120	103	163	52	116	19.6	5.2	2.8	
25	5.7	12.6	26	33	105	94	151	47	68	25	5.4	3.0	
26	5.0	11.0	22	29	111	89	142	42	52	16.4	4.3	2.7	
27	5.0	10.0	20	25	214	83	148	40	44	27	4.1	2.4	
28	5.0	10.0	18	22	488	112	128	40	39	21	3.9	2.2	
29	5.0	11.0	16	21		114	140	37	40	19.3	3.9	3.3	
30	5.0	17.4	17	70		122	150	34	50	19.0	3.1	10.2	
31	5.0		19	473		190		30		15.7	3.0		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				176.5		14		3.6		5.69		0.067	0.08
November.....				294.2		41		3.8		9.81		.116	.13
December.....				2,449		580		16		79.0		.934	1.08
Calendar year 1938				21,768.1		662		2.6		59.6		.704	9.56
January.....				2,017		473		21		65.1		.770	.89
February.....				8,033		760		105		287		3.39	3.53
March.....				6,629		623		83		214		2.53	2.92
April.....				5,646		346		128		188		2.22	2.48
May.....				2,313		170		30		74.6		.882	1.02
June.....				1,357.5		323		14.3		45.3		.535	.60
July.....				994.1		104		13.4		32.1		.379	.44
August.....				196.6		11.7		3.0		6.34		.075	.09
September.....				188.2		30		2.2		6.27		.074	.08
Water year 1938-39.....				30,294.1		760		2.2		83.0		.981	13.34

Aughwick Creek near Three Springs, Pa.

Location.- Water-stage recorder, lat. 40°12'45", long. 77°55'30", at bridge on State Highway 377, 300 feet above East Broad Top Railroad Bridge, 350 feet above mouth of Three Springs Creek, and 3½ miles northeast of Three Springs, Huntingdon County. Zero of gage is 618.65 feet above mean sea level (preliminary levels of 1929).

Drainage area.- 205 square miles.

Records available.- May 1938 to September 1939.

Extremes.- Maximum discharge during year, 6,030 second-feet Dec. 10 (gage height, 10.63 feet), from rating curve extended above 630 second-feet; minimum, 6.2 second-feet Sept. 26 (gage height, 1.86 feet).

1938-39: Maximum discharge, that of Dec. 10, 1938; minimum 4.3 second-feet Aug. 31, 1938 (gage height, 1.79 feet).

Maximum stage known, about 19.3 feet June 1, 1889 (discharge not determined).

Remarks.- Records good except those for high stages, which are fair, and those for periods of ice effect, Nov. 23-29, Dec. 16 to Jan. 5, Jan. 14-30, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Records include discharge of Three Springs Creek. Some regulation from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	10	13	102	49	784	2,100	513	361	46	150	34	9.3			
2	9.0	12	114	60	557	995	513	294	107	109	26	10			
3	11	12	86	80	2,300	675	395	264	159	87	21	10			
4	9.4	12	117	110	2,830	513	335	239	98	75	21	15			
5	8.7	16	194	140	1,100	592	294	216	80	259	28	33			
6	13	21	373	254	735	795	347	194	66	408	25	42			
7	15	30	244	236	569	698	444	176	53	208	20	23			
8	13	24	152	206	466	525	335	163	45	151	22	15			
9	13	23	117	176	426	440	325	151	41	124	27	12			
10	12	18	3,420	163	505	364	331	143	37	102	26	10			
11	11	18	1,140	151	795	309	325	129	44	84	18	9.8			
12	11	16	526	129	720	309	591	117	47	71	15	9.8			
13	9.8	16	329	112	561	593	481	114	42	64	14	11			
14	9.4	16	229	100	458	698	412	142	37	90	14	11			
15	9.8	14	180	96	570	608	385	120	38	104	14	11			
16	10	13	120	96	647	573	367	106	34	61	13	10			
17	12	13	100	98	485	454	1,160	100	29	49	11	9.8			
18	11	13	92	105	448	388	1,240	94	27	45	11	8.4			
19	10	51	78	105	381	322	1,060	87	46	54	12	8.4			
20	12	138	72	98	331	297	770	86	87	55	17	8.0			
21	18	85	64	92	273	259	585	112	71	42	22	7.6			
22	14	59	60	86	253	231	675	115	119	37	19	7.3			
23	15	49	54	80	196	203	489	108	708	34	15	7.0			
24	16	43	49	74	206	182	426	91	284	32	12	6.7			
25	15	37	45	68	177	171	378	79	167	31	22	6.5			
26	15	34	43	60	215	159	335	74	117	28	23	6.2			
27	14	53	42	57	533	151	338	70	94	74	14	6.5			
28	13	34	39	66	1,910	337	276	66	86	75	11	6.7			
29	14	37	38	120	325	312	61	134	54	54	9.8	10			
30	13	54	39	500	358	322	55	248	43	43	8.4	104			
31	13		42	1,560		608		49		43	8.0				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				380.1		18		8.7		12.3		0.060		0.07	
November.....				954		138		12		31.8		.155		.17	
December.....				8,300		3,420		38		268		1.31		1.51	
Calendar year 1938															
January.....				5,327		1,560		49		172		.839		.97	
February.....				19,431		2,830		177		694		3.39		3.53	
March.....				15,232		2,100		151		491		2.40		2.77	
April.....				14,759		1,240		276		492		2.40		2.68	
May.....				4,176		361		49		135		.659		.76	
June.....				3,191		708		27		108		.517		.58	
July.....				2,843		408		28		91.7		.447		.52	
August.....				553.2		34		8.0		17.8		.087		.10	
September.....				445.0		104		6.2		14.8		.072		.08	
Water year 1938-39				75,591.3		3,420		6.2		207		1.01		13.74	

Tuscarora Creek near Port Royal, Pa.

Location.- Water-stage recorder, lat. 40°30'55", long. 77°25'10", at highway bridge 2 miles southwest of Port Royal, Juniata County, and 3½ miles above mouth. Zero of gage is 419.80 feet above mean sea level (preliminary levels of 1925).

Drainage area.- 214 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1911 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 28 years, 260 second-feet.

Extremes.- Maximum discharge during year, 3,230 second-feet Feb. 3 (gage height, 8.83 feet); minimum, 4.8 second-feet Aug. 31, Sept. 1 (gage height, 2.18 feet).

1911-39: Maximum discharge (estimated), 14,400 second-feet Mar. 18, 1936; maximum gage height, 21.60 feet, from floodmark, affected by backwater from Juniata River, Mar. 19, 1936; minimum discharge, 1 second-foot Aug. 31, Sept. 4-6, 14, 18, 1913, Sept. 21, 1914.

Maximum flood known prior to 1911, 20.5 feet June 1, 1889 (affected by backwater, discharge not determined).

Remarks.- Records good except those for periods of ice effect, Nov. 24-29, Dec. 17 to Jan. 5, Jan. 14-31, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are fair. Regulation at medium and low stages from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	22	155	62	647	2,010	436	342	51	77	53	5.1
2	15	24	171	72	481	959	528	282	54	50	37	10
3	20	20	145	94	1,310	668	428	253	58	44	28	10
4	19	18	190	150	2,280	540	378	232	61	36	50	13
5	19	26	322	180	924	564	336	212	60	94	71	30
6	23	28	584	479	622	690	389	198	53	126	41	46
7	49	54	372	447	520	564	580	185	44	95	38	34
8	64	41	232	339	470	462	432	178	42	59	30	26
9	35	32	172	266	470	428	405	165	50	42	27	20
10	34	31	1,190	226	580	385	367	160	44	45	24	14
11	23	30	1,020	204	872	336	346	144	33	38	22	16
12	22	29	452	170	756	332	615	131	55	32	19	19
13	24	23	295	153	593	497	612	124	47	27	17	14
14	19	32	215	120	512	572	414	153	43	43	19	13
15	21	36	170	110	641	613	381	137	41	68	18	15
16	16	49	118	100	935	647	339	114	39	37	16	16
17	23	24	100	110	597	536	536	106	37	34	15	11
18	20	8.0	90	110	528	447	690	101	27	26	16	14
19	21	22	80	105	462	364	690	102	45	23	18	17
20	20	307	74	100	410	346	560	113	68	23	22	14
21	25	166	70	94	346	302	470	101	78	24	43	12
22	36	101	65	88	353	275	647	101	51	22	47	13
23	32	74	62	82	279	256	528	103	52	19	22	13
24	33	64	58	75	269	229	462	98	119	18	18	9.8
25	28	60	54	68	253	212	406	78	56	21	20	8.5
26	27	52	49	62	306	201	370	71	46	19	30	13
27	28	50	47	60	690	190	378	69	38	49	26	14
28	27	54	46	74	1,500	296	339	63	33	105	19	14
29	24	60	45	130	315	308	308	66	31	117	17	15
30	19	81	47	250	308	302	58	55	55	67	14	21
31	24		52	1,300	501		55			79	9.0	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				810	64	15	26.1	0.122	0.14			
November.....				1,618.0	307	8.0	53.9	.252	.28			
December.....				6,742	1,190	45	217	1.01	1.16			
Calendar year 1938				54,692.8	2,080	8.0	150	.701	9.49			
January.....				5,880	1,300	60	190	.888	1.02			
February.....				18,406	2,280	253	657	3.07	3.20			
March.....				15,045	2,010	190	485	2.27	2.62			
April.....				13,570	690	302	452	2.11	2.35			
May.....				4,295	342	55	139	.650	.75			
June.....				1,511	119	27	50.4	.236	.26			
July.....				1,559	126	18	50.3	.235	.27			
August.....				846.0	71	9.0	27.3	.128	.15			
September.....				490.4	46	5.1	16.3	.076	.08			
Water year 1938-39				70,772.4	2,280	5.1	194	.907	12.28			

Cocolamus Creek near Millerstown, Pa.

Location.— Water-stage recorder and concrete control, lat. 40°33'55", long. 77°07'05", at highway bridge 2.3 miles northeast of Millerstown, Perry County, and 3 miles above mouth. Zero of gage is 425.50 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 57.2 square miles.

Records available.— October 1931 to September 1939 in reports of U. S. Geological Survey; February 1930 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.— Maximum discharge during year, 986 second-feet Feb. 28 (gage height, 4.47 feet); minimum, 1.4 second-feet Sept. 27 (gage height, 1.54 feet); minimum daily discharge, 1.8 second-feet Sept. 19.

1930-39: Maximum discharge, 4,560 second-feet Aug. 24, 1933 (gage height, 8.20 feet); minimum, 0.7 second-foot Aug. 15, 1932 (gage height, 0.81 foot); minimum daily discharge, 1.3 second-feet Aug. 28, 1932.

Remarks.— Records fair. Discharge for periods of ice effect, Nov. 24 to Dec. 4, Dec. 17 to Jan. 5, Jan. 13-30, computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations. Discharge for period of weir construction, May 18-26, computed on basis of records for nearby stations. Some regulation at low stages from operation of gristmill upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	6.6	30	20	242	486	126	68	10	15	12	3.0
2	6.3	6.8	28	22	151	280	161	56	14	9.6	10	3.6
3	5.2	6.2	27	25	433	198	133	49	13	7.0	11	14
4	5.6	7.1	120	30	522	153	116	45	11	5.4	45	5.4
5	6.2	6.2	174	40	267	189	100	42	10	11	21	12
6	9.3	20	359	261	191	234	142	38	10	30	13	9.2
7	22	15	168	169	169	202	143	37	9.1	12	8.8	6.6
8	9.4	12	107	126	158	156	121	36	8.2	8.2	9.1	7.1
9	7.2	15	80	100	161	138	112	34	8.7	8.7	8.7	6.0
10	6.2	11	306	89	174	114	100	32	8.2	7.4	8.3	4.1
11	6.5	10	208	74	261	100	100	30	9.6	5.6	6.2	3.4
12	7.4	9.5	138	64	208	175	227	25	9.1	5.2	4.6	2.4
13	6.0	11	98	58	177	281	156	25	11	4.3	4.6	5.3
14	6.7	8.6	74	53	166	264	128	30	11	13	4.3	4.6
15	6.7	8.3	60	48	369	261	114	25	10	10	5.0	4.6
16	6.0	9.4	51	42	388	234	98	21	9.1	4.9	4.8	4.1
17	4.4	6.8	45	40	234	185	130	19	8.9	3.6	4.9	3.6
18	6.2	8.0	40	37	182	148	143	15	20	4.6	5.6	2.9
19	6.6	58	35	34	151	118	166	13	18	4.1	12	1.8
20	7.8	104	30	31	136	109	158	12	25	3.6	24	2.4
21	15	51	28	28	114	96	138	12	15	3.8	24	3.1
22	7.6	36	26	27	130	87	196	23	10	3.3	11	2.9
23	7.4	28	24	25	98	78	148	15	32	5.1	7.0	2.9
24	7.8	24	23	23	105	70	133	14	17	2.9	6.2	3.0
25	16	23	22	21	87	64	112	10	12	3.6	11	3.0
26	11	21	22	19	193	60	102	16	7.8	2.5	7.6	2.0
27	10	20	29	18	270	56	91	17	8.7	5.1	5.6	2.4
28	7.8	21	22	17	532	87	78	15	8.2	11	4.0	3.8
29	7.0	22	21	18	66	76	15	15	8.2	6.2	2.9	4.2
30	7.6	23	20	180	98	68	15	11	71	4.2	4.2	14
31	6.6		19	401		133		12		27	3.9	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					251.5	22	4.4	8.11	0.142		0.16	
November.....					608.5	104	6.2	20.3	.355		.41	
December.....					2,434	359	19	78.5	1.37		1.58	
Calendar year 1938.....					18,915.2	610	3.0	51.8	.906		12.32	
January.....					2,140	401	17	69.0	1.21		1.40	
February.....					6,259	532	87	224	3.92		4.08	
March.....					4,918	486	56	159	2.78		3.20	
April.....					3,816	227	68	127	2.22		2.48	
May.....					816	68	10	26.3	.460		.53	
June.....					363.8	32	7.8	12.1	.212		.24	
July.....					316.7	71	2.5	10.2	.178		.21	
August.....					309.7	45	2.9	9.99	.175		.20	
September.....					147.4	14	1.8	4.91	.086		.10	
Water year 1938-39					22,380.6	532	1.8	61.3	1.07		14.59	

Sherman Creek at Shermantdale, Pa.

Location.— Water-stage recorder, lat. 40°19'25", long. 77°10'05", at highway bridge at Shermantdale, Perry County, 1½ miles above mouth of Fishing Run. Zero of gage is 421.90 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 200 square miles.

Records available.— October 1931 to September 1939 in reports of U. S. Geological Survey; September 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 10 years, 260 second-feet.

Extremes.— Maximum discharge during year, 2,980 second-feet Feb. 28 (gage height, 5.71 feet); minimum, 6.5 second-feet Nov. 4, 5 (gage height, 0.78 foot); minimum daily discharge, 11 second-feet Sept. 17.

1929-39: Maximum discharge, 18,800 second-feet Aug. 24, 1933 (gage height, 14.05 feet), from rating curve extended above 6,500 second-feet; minimum, 3.9 second-feet Dec. 1, 1930 (gage height, 0.72 foot); minimum daily discharge, 10 second-feet Dec. 24, 25, 1930.

Maximum stage known, 20.34 feet, from floodmark, July 22, 1927 (discharge, about 37,000 second-feet).

Remarks.— Records good except those for periods of ice effect, Nov. 22-29, Dec. 16 to Jan. 5, Jan. 19-28, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Some regulation from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	25	126	54	620	1,820	483	325	69	104	39	24
2	25	34	142	82	496	970	628	284	77	53	31	22
3	26	26	112	78	1,480	737	492	261	82	43	29	22
4	32	29	265	100	1,870	618	429	248	81	35	69	22
5	34	34	567	140	921	705	383	234	76	49	36	40
6	41	40	863	608	699	820	496	218	65	331	25	33
7	74	49	406	482	645	638	658	212	58	112	30	28
8	61	47	252	365	582	537	483	199	54	116	28	31
9	40	42	196	283	566	501	450	192	56	79	24	27
10	42	38	988	259	655	450	406	183	51	55	25	24
11	36	35	658	236	1,040	406	390	170	50	46	22	20
12	35	33	401	199	800	406	721	160	62	40	20	27
13	28	28	283	179	661	551	501	164	64	38	16	23
14	33	40	221	182	597	594	445	176	65	64	15	27
15	27	31	182	178	908	542	425	164	56	68	21	25
16	24	31	140	196	1,150	565	390	151	51	40	20	22
17	26	34	125	186	771	479	565	135	48	38	19	11
18	27	36	110	163	677	421	684	132	56	40	17	24
19	20	66	100	145	592	375	820	123	69	33	26	29
20	25	223	90	130	536	360	689	110	81	32	76	22
21	38	129	82	110	453	332	579	116	76	34	119	18
22	38	75	76	100	511	315	633	237	56	32	46	19
23	30	60	72	90	392	294	505	160	86	26	33	19
24	41	53	66	80	360	274	450	132	64	27	30	18
25	41	50	64	74	325	264	413	109	49	32	28	15
26	36	49	60	72	463	258	390	100	43	26	39	22
27	34	50	56	72	863	241	390	91	36	37	28	21
28	30	66	52	100	1,970	408	357	94	38	105	30	14
29	33	80	48	200	372	336	85	55	70	27	26	26
30	23	109	47	753	397	322	77	141	107	24	109	109
31	32	48	1,130	542	542	71	71	59	23	23	23	23
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				1,059	74	20	34.2	0.171	0.20			
November.....				1,642	223	25	54.7	.274	.31			
December.....				6,898	988	47	223	1.12	1.29			
Calendar year 1938.....				61,839	1,310	20	160	.845	11.54			
January.....				7,006	1,130	54	226	1.13	1.30			
February.....				21,612	1,970	325	772	3.86	4.02			
March.....				16,192	1,820	241	522	2.61	3.01			
April.....				14,913	820	322	497	2.48	2.77			
May.....				5,103	325	71	165	.825	.95			
June.....				1,915	141	36	63.8	.319	.36			
July.....				1,971	331	26	63.6	.318	.37			
August.....				1,015	119	15	32.7	.164	.19			
September.....				784	109	11	26.1	.130	.14			
Water year 1938-39.....				80,110	1,970	11	219	1.10	14.91			

Clark Creek near Carsonville, Pa.

Location.- Chain gage, lat. 40°27'40", long. 76°45'00", 1 3/4 miles southeast of Carsonville, Dauphin County, and 15 1/2 miles above mouth. Prior to Jan. 4, 1940, water-stage recorder at a site about 1,800 feet upstream.

Drainage area.- 21.6 square miles.

Records available.- September 1937 to September 1939.

Extremes.- Maximum discharge during year, 481 second-feet Dec. 6 (gage height, 2.20 feet); minimum observed, 3.1 second-feet Sept. 18, 19, 23-27 (gage height, 1.41 feet). 1937-39: Maximum discharge, 988 second-feet Nov. 13, 1937 (gage height, 2.91 feet), from rating curve extended above 400 second-feet; minimum observed, that of Sept. 18, 19, 23-27, 1939.

Remarks.- Records fair prior to Jan. 4 and poor thereafter. Discharge for periods of missing gage record, Jan. 4, 5, 8, 14, 15, 22, Feb. 5, 12, 19, 26, Mar. 5, 12, 19, 26, Apr. 2, 9, 16, 23, 30, May 7, 14-17, July 16, 23, 30, Aug. 6, 13, 20, 27, Sept. 3, 4, 10, 17, 24, computed on basis of records for nearby stations. Discharge for period of ice effect, Jan. 24-30, computed on basis of gage heights, weather records, and records for nearby stations. Chain gage read once daily.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.4	12	27	27	49	163	53	45	15	8.3	5.2	3.8
2	9.4	12	25	25	56	114	110	42	17	8.3	5.2	3.8
3	9.4	10	28	25	64	100	104	40	18	7.9	5.2	3.5
4	9.4	10	136	24	105	87	94	38	18	7.9	8.7	5.5
5	9.4	26	249	30	90	85	79	37	16	7.6	6.2	8.3
6	23	56	355	136	75	82	76	33	15	7.2	5.6	4.2
7	34	37	206	73	73	75	110	32	14	7.2	5.0	3.8
8	15	29	150	67	63	70	76	31	13	6.8	5.2	4.2
9	12	37	118	64	56	67	70	28	13	6.5	5.0	3.8
10	10	32	153	63	112	62	67	37	12	6.5	4.7	3.8
11	10	29	114	59	98	58	63	31	12	6.5	4.7	3.8
12	9.4	29	95	72	85	65	72	29	12	6.2	4.5	3.3
13	9.4	27	78	58	71	71	68	27	12	5.8	5.5	4.0
14	9.4	25	68	50	71	66	64	26	11	6.8	6.8	3.8
15	9.4	22	59	44	73	71	61	26	11	6.5	5.2	3.8
16	10	22	50	40	114	84	64	25	11	6.3	4.2	3.6
17	10	20	48	38	100	71	67	24	11	6.2	4.7	3.5
18	12	20	45	38	92	63	73	23	11	5.8	4.2	3.1
19	14	52	39	38	88	60	83	22	11	5.8	12	3.1
20	16	75	37	37	86	58	72	21	12	5.2	20	3.3
21	27	42	34	35	72	52	68	21	11	5.2	15	3.3
22	20	39	29	33	67	50	66	21	10	5.2	6.2	3.3
23	18	39	29	32	61	50	62	21	10	5.2	4.7	3.1
24	29	37	29	29	54	48	59	19	9.6	5.2	4.7	3.1
25	27	34	27	27	50	47	56	17	8.7	5.2	10	3.1
26	18	29	27	25	70	44	53	17	8.3	4.7	5.8	3.1
27	16	29	59	23	87	42	54	16	7.9	6.5	5.0	3.1
28	15	29	37	22	127	45	49	16	7.9	12	4.5	3.3
29	12	27	29	30	44	48	16	7.2	5.8	6.8	4.7	14
30	12	27	29	60	50	46	15	7.2	6.0	6.0	4.2	18
31	12	29	29	67	56	56	16	16	5.2	5.2	4.5	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches		
October.....					456.6	34	9.4	14.7	0.681	0.79		
November.....					914	75	10	30.5	1.41	1.57		
December.....					2,438	355	25	78.6	3.64	4.20		
Calendar year 1938.....					12,398.6	355	6.1	34.0	1.57	21.34		
January.....					1,391	136	22	44.9	2.08	2.40		
February.....					2,209	127	49	78.9	3.65	3.80		
March.....					2,100	163	42	67.7	3.13	3.61		
April.....					2,087	110	46	69.6	3.22	3.59		
May.....					811	45	15	26.2	1.21	1.40		
June.....					352.8	18	7.2	11.8	.546	.61		
July.....					201.5	12	4.7	6.50	.301	.35		
August.....					197.1	20	4.2	6.36	.294	.34		
September.....					137.4	18	3.1	4.58	.212	.24		
Water year 1938-39					13,295.4	355	3.1	36.4	1.69	22.90		

Stony Creek near Dauphin, Pa.

Location.- Water-stage recorder, lat. 40°22'45", long. 76°54'31", at Reading Co. rail-road bridge 1 1/2 miles northeast of Dauphin, Dauphin County. Zero of gage is 353.75 feet above mean sea level (general adjustment of 1907).

Drainage area.- 35.0 square miles.

Records available.- September 1937 to September 1939.

Extremes.- Maximum discharge during year, 599 second-feet Dec. 6 (gage height, 4.32 feet); minimum, 1.9 second-feet July 4; minimum daily discharge, 3.3 second-feet Sept. 28.

1937-39: Maximum discharge, 835 second-feet Nov. 13, 1937 (gage height, 5.00 feet); minimum, that of July 4, 1939; minimum daily discharge, that of Sept. 28, 1939.

Remarks.- Records good except those for periods of ice effect, Nov. 25-29, Jan. 16-30, which were computed on basis of gage heights, weather records, and records for nearby stations, and are fair. Some regulation from operation of small storage reservoir upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	25	55	49	85	229	96	66	17	11	11	4.4
2	18	24	55	47	72	170	157	61	19	9.8	10	4.4
3	17	23	54	47	147	139	145	56	21	8.9	8.0	4.0
4	16	22	142	44	184	124	112	54	19	7.0	9.6	6.7
5	15	37	316	45	129	131	100	50	18	7.8	15	9.2
6	31	105	531	157	111	149	138	48	15	8.7	9.6	8.0
7	65	110	276	131	103	135	168	46	15	8.7	7.3	6.5
8	54	82	188	95	95	111	133	44	14	8.4	6.7	6.0
9	34	75	147	78	90	102	114	47	13	8.1	7.0	5.4
10	27	65	191	72	92	95	103	55	13	7.5	7.3	4.9
11	22	57	188	68	131	87	106	47	13	7.8	6.5	4.7
12	20	52	151	63	129	90	155	41	13	7.2	5.4	4.2
13	20	47	129	61	107	114	126	37	12	7.8	5.2	4.4
14	19	46	114	58	105	112	107	37	15	21	5.4	4.9
15	19	44	102	55	163	109	98	36	14	16	6.5	4.9
16	18	40	90	50	271	116	92	33	12	11	6.7	4.4
17	18	40	82	48	177	111	116	31	11	9.6	6.2	4.2
18	18	40	79	46	151	98	149	30	11	8.6	7.6	4.0
19	18	69	75	44	135	87	149	29	13	8.3	15	3.8
20	22	110	69	42	126	81	126	31	15	8.3	19	3.6
21	37	89	66	39	120	78	111	29	14	8.3	13	3.6
22	34	69	62	38	112	75	111	28	11	8.0	8.6	3.8
23	28	60	58	36	96	71	102	25	12	8.0	7.3	3.8
24	38	57	55	35	88	67	90	22	11	7.3	6.2	3.6
25	54	54	53	34	81	64	84	20	9.8	6.7	18	4.0
26	45	52	53	32	125	62	79	19	8.7	7.0	13	3.8
27	36	50	92	31	162	61	76	19	9.4	6.8	8.6	3.4
28	32	50	82	30	198	87	74	19	8.7	10	7.0	3.3
29	31	52	80	32	82	71	71	17	9.4	13	6.5	5.2
30	29	54	56	100	85	68	68	16	11	18	5.4	17
31	26	50	126	102	102	17	17	13	13	13	4.9	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				1,880	65	15	28.4	0.811	0.94			
November.....				1,700	110	22	56.7	1.62	1.81			
December.....				3,741	531	50	121	3.46	3.99			
Calendar year 1938				19,001.6	531	9.6	52.1	1.49	20.20			
January.....				1,833	157	30	59.1	1.69	1.95			
February.....				3,585	271	72	128	3.66	3.81			
March.....				3,224	229	61	104	2.97	3.42			
April.....				3,356	168	68	112	3.20	3.57			
May.....				1,110	66	16	35.8	1.02	1.18			
June.....				398.0	21	8.7	13.3	.380	.42			
July.....				297.6	21	6.7	9.60	.274	.32			
August.....				273.5	19	4.9	8.82	.252	.29			
September.....				154.1	17	3.3	5.14	.147	.16			
Water year 1938-39				20,552.2	531	3.3	56.3	1.61	21.86			

Conodoguinet Creek near Hogestown, Pa.

Location.— Water-stage recorder, lat. 40°15'10", long. 77°01'15", 1,000 feet above highway bridge, three-eighths of a mile below mouth of Hogestown Run, and 1 mile northeast of Hogestown, Cumberland County. Zero of gage is 350.25 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 470 square miles.

Records available.— October 1931 to September 1939 in reports of U. S. Geological Survey; September 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 10 years, 514 second-feet.

Extremes.— Maximum discharge during year, 4,690 second-feet Feb. 4 (gage height, 6.80 feet); minimum, 60 second-feet Oct. 14 (gage height, 0.92 foot); minimum daily discharge, 70 second-feet Oct. 3.

1929-39: Maximum discharge, 13,100 second-feet Dec. 2, 1934 (gage height, 11.32 feet); minimum, 24 second-feet Dec. 16, 1930.

Remarks.— Records good except those for periods of ice effect, Nov. 23-29, Dec. 18 to Jan. 4, Jan. 15-28, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are fair. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	85	88	200	140	1,850	3,500	824	629	160	1,770	184	90			
2	84	76	288	150	1,240	2,030	902	601	171	732	143	126			
3	70	82	337	170	2,010	1,460	850	529	403	455	154	784			
4	81	80	438	200	4,430	1,160	712	486	335	322	114	382			
5	77	98	1,290	288	2,370	1,160	641	450	260	264	118	614			
6	95	167	2,140	608	1,540	1,460	736	425	215	850	111	432			
7	132	129	1,440	990	1,300	1,300	1,200	400	179	773	96	236			
8	118	118	843	773	1,270	1,020	990	381	165	455	111	165			
9	96	115	612	595	1,130	929	856	362	160	318	107	152			
10	90	110	1,160	502	1,130	837	761	353	157	260	103	126			
11	94	96	2,210	450	1,460	736	730	331	149	223	102	110			
12	89	89	1,200	372	1,420	718	949	309	146	171	102	102			
13	78	96	818	340	1,200	1,010	922	293	152	160	98	118			
14	72	96	590	284	1,020	1,420	742	293	152	168	102	108			
15	84	82	471	250	1,130	1,200	700	301	152	213	102	103			
16	78	90	367	210	1,660	1,130	658	284	149	177	102	105			
17	72	84	305	200	1,160	956	1,080	268	141	143	123	94			
18	86	84	270	200	1,020	805	1,860	280	141	134	140	88			
19	78	110	240	210	922	706	1,820	234	152	136	155	92			
20	84	211	220	200	818	664	1,540	238	165	131	214	86			
21	112	258	200	180	712	624	1,240	230	187	134	325	84			
22	112	215	170	170	688	578	1,130	285	174	123	288	86			
23	110	160	165	160	595	545	1,020	322	172	121	184	83			
24	108	150	160	150	513	507	830	257	457	119	136	86			
25	125	130	155	140	492	486	742	223	284	118	130	80			
26	106	120	145	135	595	466	688	206	190	119	114	83			
27	98	120	140	130	1,090	450	676	203	168	148	102	86			
28	92	135	130	140	1,740	540	749	203	154	286	96	84			
29	88	145	120	268		618	653	210	143	408	100	110			
30	83	162	120	680		618	664	187	1,220	268	96	151			
31	77		130	1,950		837		180		206	94				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				2,854		132		70		92.1		0.196		0.23	
November.....				3,696		258		76		123		.262		.29	
December.....				17,074		2,210		120		551		1.17		1.35	
Calendar year 1938				115,732		2,310		66		317		.674		9.15	
January.....				11,135		1,950		130		359		.764		.88	
February.....				36,505		4,430		492		1,304		2.77		2.88	
March.....				30,470		3,500		450		983		2.09		2.41	
April.....				27,845		1,860		641		928		1.97		2.20	
May.....				9,933		629		180		320		.681		.79	
June.....				6,854		1,220		141		228		.485		.54	
July.....				9,905		1,770		118		320		.681		.79	
August.....				4,125		325		94		133		.283		.33	
September.....				5,048		784		80		168		.357		.49	
Water year 1938-39.....				165,444		4,430		70		453		.964		13.09	

Swatara Creek at Harper Tavern, Pa.

Location.— Water-stage recorder, lat. 40°24'10", long. 76°34'35", at highway bridge at Harper Tavern, Lebanon County, 6 miles northwest of Annville and 8½ miles below mouth of Little Swatara Creek. Zero of gage is 355.53 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 333 square miles.

Records available.— October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; December 1918 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 20 years, 537 second-feet.

Extremes.— Maximum discharge during year, 8,350 second-feet Dec. 6 (gage height, 10.30 feet); minimum, 30 second-feet Sept. 29 (gage height, -0.05 foot).

1918-39: Maximum discharge, 25,300 second-feet Aug. 24, 1933 (gage height, 17.53 feet); minimum, 8 second-feet Sept. 24, 25, 1932.

Maximum stage known, 25.6 feet, from floodmark, June 1, 1889 (discharge, 53,000 second-feet, from rating curve extended above 25,000 second-feet).

Remarks.— Records good except those for periods of ice effect, Nov. 26-29, Dec. 29, 30, Jan. 14-30 (computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations), and those below 40 second-feet, all of which are fair. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	252	220	552	425	1,310	2,500	864	530	190	97	56	53
2	220	204	576	420	1,100	1,750	1,630	460	196	69	47	51
3	193	197	540	430	2,200	1,430	1,340	410	141	59	130	49
4	180	186	2,400	400	2,960	1,250	1,160	380	129	57	2,300	69
5	170	234	4,000	380	1,810	1,310	980	350	119	86	352	168
6	378	1,050	7,470	970	1,460	1,430	1,360	336	112	96	155	93
7	1,160	882	3,490	842	1,430	1,160	1,790	322	104	76	108	60
8	552	684	2,310	694	1,340	952	1,280	300	99	62	128	58
9	415	816	1,780	634	1,160	920	1,130	308	101	55	102	51
10	346	648	2,340	606	1,190	842	980	506	101	48	80	46
11	298	570	1,910	584	1,680	749	903	345	97	46	64	43
12	265	528	1,620	520	1,400	826	1,310	290	97	43	59	41
13	240	494	1,370	480	1,280	1,310	892	259	109	41	54	43
14	220	471	1,160	440	1,160	1,280	782	282	488	89	722	47
15	208	388	1,010	400	1,510	1,310	760	268	162	74	134	45
16	193	357	826	350	2,190	1,370	710	232	100	52	96	41
17	183	362	771	330	1,490	1,250	898	226	87	43	76	39
18	167	367	744	300	1,370	1,100	1,280	218	82	41	93	37
19	163	627	688	270	1,250	925	1,190	206	84	39	214	35
20	184	1,460	617	240	1,130	864	1,070	203	95	39	548	35
21	445	960	573	220	952	776	952	200	95	37	484	35
22	260	804	546	210	870	716	1,040	302	80	35	294	35
23	197	702	495	160	710	666	881	268	78	34	148	35
24	418	654	485	190	672	600	744	214	74	34	115	35
25	687	582	470	180	617	568	683	182	68	34	117	35
26	421	560	445	170	991	535	656	169	59	34	91	35
27	367	520	940	160	1,460	500	656	157	59	165	80	34
28	321	490	744	160	1,960	793	590	151	59	434	70	32
29	283	480	580	170		644	551	142	59	77	63	41
30	265	505	500	600		785	510	132	72	56	61	293
31	255		450	2,080		1,070		124		74	55	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				9,886	1,160	163	319	0.958	1.10			
November.....				17,002	1,460	186	567	1.70	1.90			
December.....				42,402	7,470	445	1,368	4.11	4.74			
Calendar year 1938				219,429	7,470	78	601	1.80	24.52			
January.....				14,015	2,080	160	452	1.36	1.57			
February.....				38,652	2,960	617	1,380	4.14	4.31			
March.....				32,181	2,500	500	1,038	3.12	3.60			
April.....				29,572	1,790	510	986	2.96	3.30			
May.....				8,472	530	124	273	.820	.94			
June.....				3,396	488	59	113	.339	.38			
July.....				2,226	434	34	71.8	.216	.25			
August.....				7,096	2,300	47	229.	.688	.79			
September.....				1,711	293	32	57.0	.171	.19			
Water year 1938-39.....				206,611	7,470	32	566	1.70	23.07			

Manada Creek at Manada Gap, Pa.

Location.— Water-stage recorder and concrete control, lat. 40°23'55", long. 76°42'40", at highway bridge at Manada Gap, Dauphin County, 3 miles northwest of Shellville and 9 miles above mouth. Zero of gage is 516.07 feet above mean sea level (general adjustment of 1929).

Drainage area.— 13.5 square miles.

Records available.— September 1937 to September 1939.

Extremes.— Maximum discharge during year, 238 second-feet Dec. 6 (gage height, 3.50 feet); minimum, 1.8 second-feet Sept. 27 (gage height, 1.50 feet).
1937-39: Maximum discharge, 388 second-feet Nov. 13, 1937 (gage height, 4.00 feet); minimum, that of Sept. 27, 1939.

Remarks.— Records good except those for period of ice effect, Jan. 22-29 (computed on basis of gage heights, weather records, and records for nearby stations), and those for period of recorder failure, July 12-24 (computed on basis of range in stage shown by recorder graph, weather records, and records for nearby stations), all of which are fair.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.6	5.8	16.3	15.7	48	94	40	21	7.0	3.9	3.0	2.4
2	5.0	5.6	16.3	15.7	42	74	55	20	7.3	3.4	3.0	2.4
3	4.7	5.4	19.4	15.7	91	56	48	18.8	7.3	3.2	3.7	2.4
4	4.5	5.2	67	15.0	101	48	43	18.1	7.3	3.5	4.7	3.5
5	4.3	22	128	15.0	75	53	37	17.5	6.6	3.5	3.4	4.7
6	15.6	42	188	59	60	54	62	16.9	6.3	3.5	2.6	2.6
7	12.3	39	110	40	51	44	63	15.7	5.8	3.2	2.5	2.5
8	7.9	30	71	37	44	40	55	15.0	5.6	3.2	3.6	2.6
9	7.3	26	54	32	39	39	49	18.8	5.6	3.1	2.6	2.3
10	6.3	20	73	30	41	35	43	18.2	6.0	2.9	2.4	2.3
11	5.4	17.5	56	26	64	29	40	15.0	5.6	2.8	2.3	2.2
12	5.2	15.7	53	24	60	34	48	13.8	5.2	2.8	2.3	2.2
13	4.7	13.8	42	22	55	50	35	12.9	5.0	2.7	2.3	2.9
14	5.0	12.2	35	21	49	48	34	12.9	5.6	5.0	2.4	2.4
15	4.7	11.0	30	18.8	73	46	33	12.9	5.0	4.0	2.2	2.3
16	4.5	10.1	26	17.5	79	48	32	12.4	4.7	3.3	2.3	2.2
17	4.3	10.1	24	16.9	64	40	43	12.0	4.8	3.1	2.5	2.1
18	4.1	9.7	22	16.9	56	36	53	11.6	4.5	2.9	2.8	2.0
19	3.9	28	19.4	16.3	48	31	54	11.5	5.6	2.8	7.4	2.0
20	6.5	32	18.1	15.4	44	30	48	12.0	5.6	2.8	4.2	2.2
21	8.7	26	16.9	14.4	36	27	43	12.0	4.7	2.7	2.9	2.2
22	5.4	24	15.7	13	33	26	42	11.5	4.3	2.7	2.5	2.0
23	4.7	21	15.0	12	28	24	34	10.6	4.8	2.7	2.2	2.0
24	13.2	19.4	14.4	11	26	22	31	9.2	3.9	2.6	13.4	1.9
25	10.7	19.0	13.8	10	23	21	28	9.2	3.8	2.6	7.0	1.9
26	9.2	16.3	12.4	10	53	19.4	27	9.2	3.7	2.5	3.8	1.9
27	8.9	15.2	30	9.5	48	18.8	26	8.9	3.7	3.7	3.1	1.9
28	8.6	14.4	24	9.5	86	32	24	8.9	3.7	3.6	2.7	2.0
29	7.6	13.7	18.6	11	22	23	23	8.2	3.7	4.0	2.6	4.4
30	7.0	14.4	16.9	57	34	21	21	7.9	3.9	5.2	2.4	7.3
31	6.3		16.3	60	38			7.3		3.2	2.4	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				212.1	15.6	3.9	6.84	0.507	0.58			
November.....				544.5	42	5.2	18.2	1.35	1.51			
December.....				1,262.5	188	12.4	40.7	3.01	3.47			
Calendar year 1938				6,768.4	188	2.8	18.5	1.37	18.67			
January.....				687.3	60	9.5	22.2	1.64	1.89			
February.....				1,517	101	23	54.2	4.01	4.18			
March.....				1,213.2	94	18.8	39.1	2.90	3.34			
April.....				1,214	63	21	40.5	3.00	3.35			
May.....				409.8	21	7.3	13.2	.978	1.13			
June.....				156.5	7.3	3.7	5.22	.387	.43			
July.....				101.1	5.2	2.5	3.26	.241	.28			
August.....				107.2	13.4	2.2	3.46	.256	.30			
September.....				77.7	7.3	1.9	2.59	.192	.21			
Water year 1938-39				7,502.9	188	1.9	20.6	1.53	20.67			

West Conewago Creek near Manchester, Pa.

Location.— Water-stage recorder, lat. 40°04'55", long. 76°43'10", 500 feet above Manchester-York Haven highway bridge and 1½ miles north of Manchester, York County. Zero of gage is 283.04 feet above mean sea level (Pennsylvania Railroad benchmark).

Drainage area.— 510 square miles.

Records available.— October 1928 to September 1939.

Average discharge.— 10 years, 528 second-feet.

Extremes.— Maximum discharge during year, 16,500 second-feet Feb. 4 (gage height, 13.70 feet); minimum, 12 second-feet Sept. 25 (gage height, 1.45 feet); minimum daily discharge, 16 second-feet Sept. 28.

1928-39: Maximum discharge, 47,600 second-feet Aug. 24, 1933 (gage height, 24.14 feet); minimum, 2 second-feet Aug. 7, 8, Oct. 20, 1930.

Remarks.— Records fair. Discharge for periods of ice effect, Nov. 27 to Dec. 3, Jan. 25-29, computed on basis of gage heights, weather records, and records for nearby stations. Discharge for periods of recorder failure, Jan. 7-10, 20-24, May 7-12, June 12-20, computed on basis of weather records, one discharge measurement, and records for nearby stations. Regulation at low stages from operation of gristmills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	56	250	259	2,340	5,990	811	556	87	88	78	34
2	52	79	350	268	1,520	1,830	926	482	94	200	57	30
3	55	69	322	275	7,100	1,200	783	407	94	109	49	24
4	42	58	1,510	278	10,200	975	556	367	117	83	59	23
5	46	68	3,640	249	2,460	1,530	487	336	106	68	47	463
6	58	439	8,050	1,420	1,630	2,200	942	316	106	74	32	272
7	62	533	2,280	600	1,430	1,560	3,270	300	96	58	34	120
8	97	298	1,150	400	1,530	825	1,120	280	83	62	134	76
9	97	210	864	360	1,120	719	818	270	70	66	51	59
10	73	196	2,260	320	1,820	660	719	260	76	61	54	38
11	64	171	1,880	535	4,380	590	701	250	74	47	43	43
12	63	138	992	447	1,760	607	1,140	240	72	53	38	34
13	53	125	801	368	1,090	2,070	841	236	140	50	24	47
14	59	112	618	337	943	2,300	570	228	100	46	34	49
15	53	111	525	299	1,620	1,070	529	250	88	37	28	43
16	47	115	420	276	3,490	967	512	228	76	47	18	40
17	59	99	356	314	1,160	777	2,250	205	68	54	28	27
18	43	98	364	289	912	632	4,520	193	100	44	18	25
19	44	105	364	265	920	560	2,140	182	140	40	31	34
20	51	384	317	220	839	529	1,480	171	180	44	59	20
21	72	399	268	230	719	516	1,050	168	135	38	83	23
22	76	222	255	230	632	478	1,040	199	128	40	91	30
23	101	176	234	190	529	482	920	276	102	32	59	27
24	93	157	214	200	434	446	707	191	190	40	49	18
25	101	165	219	150	419	407	616	158	142	32	205	19
26	106	145	216	100	682	385	570	135	87	22	208	30
27	99	145	603	94	2,480	382	784	124	82	405	79	18
28	92	160	1,510	90	3,790	605	992	121	68	794	59	16
29	79	160	464	110		850	702	107	64	456	42	147
30	70	180	307	1,980		631	632	115	56	140	42	572
31	68		292	6,100		1,720		96		82	41	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				2,131	106	42	68.7	0.135	0.16			
November.....				5,373	533	56	179	.351	.39			
December.....				31,895	8,050	214	1,029	2.02	2.33			
Calendar year 1938.....				140,478	8,050	23	385	.755	10.25			
January.....				17,163	6,100	90	554	1.09	1.26			
February.....				57,949	10,200	419	2,070	4.06	4.23			
March.....				34,293	5,990	382	1,106	2.17	2.50			
April.....				33,128	4,520	487	1,104	2.16	2.41			
May.....				7,447	556	96	240	.470	.54			
June.....				3,021	190	56	101	.198	.22			
July.....				3,412	794	22	110	.216	.25			
August.....				1,874	208	18	60.4	.118	.14			
September.....				2,401	572	16	80.0	.157	.18			
Water year 1938-39				200,087	10,200	16	548	1.07	14.61			

Codorus Creek at Spring Grove, Pa.

Location.- Water-stage recorder, lat. 39°52'10", long. 76°51'55", at highway bridge at Spring Grove, York County, half a mile below mouth of Bunch Creek. Zero of gage is 436.43 feet above mean sea level (preliminary levels of 1920).
 Drainage area.- 74.3 square miles.
 Records available.- March 1932 to September 1939 in reports of U. S. Geological Survey; April 1929 to September 1939 in reports of Pennsylvania Department of Forests and Waters.
 Extremes.- Maximum discharge during year, 1,620 second-feet Feb. 3 (gage height, 6.44 feet); minimum, 0.5 second-foot Aug. 13 (gage height, 0.19 foot); minimum daily discharge, 2.5 second-feet Sept. 24.
 1929-39: Maximum discharge, 11,200 second-feet Aug. 23, 1933 (gage height, 11.84 feet), by computation of flow over dam upstream; minimum recorded, that of Aug. 13, 1939; minimum daily discharge, 2.0 second-feet Sept. 20, 1936.
 Remarks.- Records fair. Regulation at low stages from operation of paper mill above gage.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	13	59	43	152	348	109	116	35	62	14	8.4
2	14	13	50	44	147	224	107	104	40	29	12	6.9
3	13	13	47	43	790	187	91	97	40	25	13	8.0
4	13	13	178	42	475	169	84	92	37	22	17	27
5	12	24	325	42	241	236	80	87	34	29	14	67
6	26	45	480	83	205	219	185	84	30	27	11	13
7	30	24	165	52	192	161	152	81	27	24	10	12
8	17	21	122	49	152	144	120	76	25	22	17	14
9	16	25	105	44	135	142	114	139	27	20	9.8	10
10	16	20	155	45	158	132	112	93	27	19	8.6	36
11	15	19	100	42	230	126	111	77	115	16	8.2	14
12	14	18	90	41	168	170	145	73	101	15	6.0	11
13	14	17	76	38	158	240	110	71	190	19	4.6	14
14	14	22	70	45	150	158	104	71	130	61	9.1	13
15	13	17	63	38	400	148	102	68	49	21	8.2	11
16	14	16	55	38	262	144	126	64	43	17	12	9.6
17	13	17	57	36	193	127	252	63	39	17	9.8	5.4
18	12	17	56	41	186	121	242	59	35	17	12	11
19	13	44	51	40	166	115	196	56	44	21	70	9.2
20	17	70	48	33	152	116	161	55	60	16	40	9.5
21	28	35	48	37	138	108	145	57	38	16	26	9.4
22	14	31	43	40	133	111	160	56	36	15	12	9.2
23	13	29	40	34	111	107	130	50	62	16	10	8.9
24	24	29	44	40	107	101	120	46	34	31	18	2.5
25	19	31	42	34	103	100	115	43	30	16	44	6.8
26	15	34	41	26	180	99	150	42	30	28	15	9.3
27	15	34	144	35	133	91	178	41	26	150	12	10
28	14	33	55	30	566	108	142	38	28	172	11	10
29	15	34	46	41		87	133	35	28	23	10	12
30	14	45	44	536		145	121	33	39	31	9.6	311
31	13		43	274		117		32		18	8.6	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					494	30	12	15.9	0.214		0.25	
November.....					803	70	13	26.8	.361		.40	
December.....					2,942	480	40	94.9	1.28		1.48	
Calendar year 1938.....					18,681	480	10	51.2	.689		9.36	
January.....					2,006	536	26	64.7	.871		1.00	
February.....					6,183	790	103	221	2.97		3.09	
March.....					4,601	348	87	148	1.99		2.29	
April.....					4,097	252	80	137	1.84		2.05	
May.....					2,099	139	32	67.7	.911		1.05	
June.....					1,480	190	26	49.3	.664		.74	
July.....					1,015	172	15	32.7	.440		.51	
August.....					482.5	70	4.6	15.6	.210		.24	
September.....					702.1	311	2.5	23.4	.315		.35	
Water year 1938-39.....					26,904.6	790	2.5	73.7	.992		13.45	

South Branch of Codorus Creek near York, Pa.

Location.- Water-stage recorder, lat. 39°55'10", long. 76°45'00", just below dam of pumping station of York Water Co., half a mile above confluence with Codorus Creek, and 3 miles southwest of York, York County. Zero of gage is 373.03 feet above mean sea level (general adjustment of 1907).
 Drainage area.- 117 square miles.
 Records available.- October 1931 to September 1939 in reports of U. S. Geological Survey; May 1925 to September 1939 in reports of Pennsylvania Department of Forests and Waters.
 Average discharge.- 12 years (1927-39), 132 second-feet.
 Extremes.- Maximum discharge during year, 1,710 second-feet Feb. 3 (gage height, 6.15 feet); minimum, 4.8 second-feet Jan. 25 (gage height, 0.65 foot); minimum daily discharge, 15 second-feet Sept. 25.
 1925-39: Maximum discharge, 19,300 second-feet Aug. 23, 1933 (gage height, 17.97 feet, from floodmark in gage house), from rating curve extended on basis of contracted-opening determination; minimum, 0.8 second-foot Aug. 28, 1935, Nov. 19, 1936; minimum daily discharge, 5.5 second-feet Sept. 24, 1936.
 Remarks.- Records fair. Discharge for period of ice effect, Jan. 23, computed on basis of gage heights, weather records, and records for nearby stations. Regulation from operation of pumping plant upstream. Municipal water supply for York diverted above station not included in records except in last three columns of monthly table. Record of monthly diversion furnished by York Water Co.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	37	84	76	218	586	157	167	68	55	26	32
2	36	33	75	73	190	406	159	154	76	45	28	31
3	42	36	71	72	759	338	135	143	73	39	25	32
4	102	35	266	71	832	311	129	134	72	38	29	74
5	44	39	344	71	448	387	122	128	115	42	31	226
6	57	75	684	92	379	366	237	124	91	44	28	37
7	94	54	329	78	348	286	277	122	40	42	23	30
8	48	47	234	75	277	246	184	112	38	42	29	29
9	45	74	193	69	240	242	175	214	32	39	30	24
10	44	44	208	71	261	224	169	169	34	39	22	42
11	46	43	157	64	387	216	160	114	47	35	19	27
12	32	44	139	62	302	254	240	105	144	32	18	21
13	31	44	124	64	286	392	159	104	82	34	20	37
14	31	52	110	71	268	292	148	112	112	72	22	33
15	33	38	100	62	443	251	155	102	58	40	32	26
16	34	38	92	64	481	244	171	102	49	37	54	24
17	32	43	95	66	340	216	339	99	46	32	24	22
18	32	44	100	68	328	203	363	89	138	40	27	22
19	32	64	89	66	304	190	311	91	76	37	106	23
20	40	134	85	52	279	184	259	88	82	29	78	22
21	79	66	84	62	246	176	230	95	58	31	45	20
22	39	54	75	59	234	180	246	91	49	29	30	18
23	36	46	72	54	193	175	201	81	68	29	27	17
24	64	57	75	56	182	162	184	77	52	104	50	16
25	65	60	77	49	176	157	175	72	51	90	200	15
26	42	60	77	39	303	157	198	73	42	34	60	16
27	38	58	240	62	263	148	249	73	42	45	48	25
28	40	55	110	58	630	166	218	76	47	142	40	30
29	48	59	84	63		139	193	71	54	40	36	25
30	37	68	82	988		195	180	76	48	51	58	183
31	35		75	406		184		68		36	32	
Month			Observed				Diversions		Adjusted for diversion storage			
			Second-foot-days	Maximum	Minimum	Mean	(Mean)	Mean	Per square mile	Run-off in inches		
October.....			1,423	102	31	45.9	13.1	59.0	0.504	0.58		
November.....			1,601	134	33	53.4	13.3	66.7	.570	.64		
December.....			4,630	684	71	149	13.4	162	1.38	1.59		
Calendar year 1938			33,125	2,520	24	90.8	12.8	104	.889	12.00		
January.....			3,285	988	39	106	12.6	119	1.02	1.18		
February.....			9,597	832	176	343	13.0	356	3.04	3.17		
March.....			7,673	586	139	248	13.2	261	2.23	2.57		
April.....			6,123	363	122	204	13.2	217	1.85	2.05		
May.....			3,324	214	68	107	14.1	121	1.03	1.19		
June.....			1,984	144	32	66.1	15.3	81.4	.696	.78		
July.....			1,444	142	29	46.6	14.9	61.5	.626	.61		
August.....			1,277	200	18	41.2	15.9	57.1	.488	.56		
September.....			1,179	226	15	39.3	14.4	53.7	.459	.51		
Water year 1938-39			43,540	988	15	119	13.9	133	1.14	15.44		

Conestoga Creek at Lancaster, Pa.

Location.- Water-stage recorder and concrete control, lat. 40°03'00", long. 76°16'40", at Pennsylvania Railroad bridge, 500 feet below diversion dam of city waterworks, and three-quarters of a mile east of Lancaster, Lancaster County. Zero of gage is 244.74 feet above mean sea level (general adjustment of 1907).

Drainage area.- 322 square miles.

Records available.- September 1928 to September 1939.

Extremes.- Maximum discharge during year, 6,450 second-feet Feb. 4 (gage height, 9.16 feet), from rating curve extended above 2,000 second-feet; minimum, 2.8 second-feet Jan. 28 (gage height, 2.13 feet); minimum daily discharge, 50 second-feet Sept. 25. 1928-39: Maximum discharge, 22,800 second-feet Aug. 24, 1933 (gage height, 17.52 feet, from floodmark in recorder shelter), from rating curve extended on basis of slope-area determination; probably no flow at times; minimum daily discharge observed, 9 second-feet Oct. 14, 1931, Sept. 15, 23, 1932.

Remarks.- Records good except those for high stages, and those for period of ice effect, Nov. 26 to Dec. 3 (computed on basis of gage heights, weather records, and records for nearby stations), all of which are fair. Regulation from operation of waterworks upstream. Water supply for city of Lancaster diverted above gage not included in records except in last four columns of monthly table. Record of diversion furnished by city of Lancaster.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	134	138	170	249	758	2,310	584	521	170	1,060	119	89
2	126	126	180	260	657	1,180	766	457	170	166	91	85
3	129	126	200	264	2,030	1,010	617	435	170	136	85	83
4	126	118	938	249	3,730	944	527	413	167	118	526	88
5	123	121	774	241	1,420	1,060	503	393	173	113	236	194
6	157	136	2,100	318	1,180	811	878	382	164	123	115	137
7	289	192	936	315	1,200	928	1,810	372	153	121	96	106
8	183	167	671	260	1,130	766	872	367	142	121	129	94
9	147	157	577	249	944	743	780	342	147	91	118	84
10	142	170	787	237	960	700	750	348	139	104	94	83
11	139	139	700	272	1,590	657	692	315	134	114	87	67
12	126	131	540	237	1,120	700	960	306	153	103	78	84
13	116	126	486	230	992	1,000	692	294	160	94	70	84
14	116	145	424	212	936	1,070	610	302	283	106	113	77
15	116	142	393	212	1,260	818	603	306	205	106	150	78
16	113	118	353	226	1,950	842	577	276	153	85	116	70
17	116	123	343	222	1,040	692	728	272	145	87	104	66
18	113	121	353	219	1,000	844	1,180	260	131	101	86	52
19	111	136	353	216	968	603	920	260	145	85	668	81
20	116	344	320	208	920	603	780	249	167	78	1,060	76
21	197	240	302	205	803	577	678	249	159	83	280	60
22	176	176	294	208	788	552	743	256	136	83	186	66
23	129	161	276	182	664	540	664	241	134	63	142	51
24	150	161	272	230	630	515	610	226	126	77	208	58
25	362	161	272	182	610	492	565	208	113	85	276	50
26	189	155	272	180	922	521	577	205	115	66	139	63
27	153	150	606	189	1,080	492	630	198	123	72	111	54
28	142	150	430	176	1,530	651	558	186	111	146	113	64
29	145	150	289	192		576	521	189	108	116	108	61
30	156	160	264	849		655	498	179	242	156	94	98
31	150		252	1,990		894		173		218	94	

Month	Observed				Diversión (Mean)	Adjusted for diversion		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October.....	4,657	352	111	150	9.53	160	0.497	0.57
November.....	4,660	364	118	155	9.48	164	.509	.57
December.....	15,127	2,100	170	468	9.43	497	1.54	1.78
Calendar year 1938	131,755	3,120	111	361	10.3	371	1.15	15.64
January.....	9,479	1,990	176	306	9.43	315	.978	1.13
February.....	32,802	3,730	610	1,172	9.64	1,182	3.67	3.82
March.....	24,546	2,310	492	792	10.0	802	2.49	2.87
April.....	21,873	1,810	498	729	9.92	739	2.30	2.57
May.....	9,180	521	173	296	10.2	306	.950	1.10
June.....	4,638	283	108	155	10.2	165	.512	.57
July.....	4,277	1,060	63	138	10.0	148	.460	.53
August.....	5,892	1,060	70	190	10.2	200	.621	.72
September.....	2,403	194	50	80.1	9.95	90.0	.280	.31
Water year 1938-39	159,534	3,730	50	382	9.83	392	1.22	16.54

POTOMAC RIVER BASIN

Evitts Creek near Bedford Valley, Pa.

Location.- Water-stage recorder and concrete control, lat. 39°47'23", long. 78°38'48", 2 miles upstream from Thomas W. Koon Dam, 3 miles south of Bedford Valley post office, Bedford County, and 7 miles upstream from Rock Gully Creek.

Drainage area.- 30.2 square miles.

Records available.- September 1932 to September 1939.

Extremes.- Maximum discharge during year, 2,600 second-feet July 29 (gage height, 5.18 feet), from rating curve extended above 400 second-feet; minimum, 2.7 second-feet Dec. 28 (gage height, 1.09 feet).

1932-39: Maximum discharge, about 5,240 second-feet Mar. 17, 1936 (gage height, 7.13 feet), from rating curve extended on basis of slope-area determination; minimum, 1.2 second-feet July 27, 1934 (gage height, 0.96 foot).

Maximum stage known, about 8 feet, from floodmark, date unknown (discharge not determined).

Remarks.- Records good except those above 400 second-feet and those for period of ice effect, Dec. 26, 27 (computed on basis of gage heights and weather records), all of which are fair. Records furnished by U. S. Geological Survey, College Park, Md.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	3.4	13	6.8	65	190	67	82	11	18	47	5.2
2	3.2	3.4	9.4	9.0	55	113	69	58	47	14	35	5.2
3	3.2	3.2	7.4	15	337	87	55	50	28	13	30	5.2
4	3.2	3.2	14	30	230	72	49	46	19	14	28	5.5
5	3.2	6.0	16	26	110	120	45	42	15	22	22	9.8
6	3.4	6.8	21	22	85	116	64	40	14	21	18	6.2
7	3.8	4.8	12	17	85	80	64	36	13	14	18	5.5
8	3.6	4.2	9.4	15	69	71	47	34	13	13	26	5.0
9	3.4	4.0	8.7	14	69	64	46	33	12	12	17	4.6
10	3.2	3.8	7.4	14	96	55	54	30	14	11	14	4.6
11	3.2	3.6	26	13	108	50	54	27	13	11	12	4.6
12	3.2	3.6	18	12	74	74	78	24	11	9.4	12	4.4
13	3.2	3.6	14	11	67	113	50	30	13	8.7	11	5.5
14	6.8	3.4	12	15	62	72	46	33	16	22	11	5.5
15	4.6	3.0	11	12	81	64	46	26	11	11	9.8	5.0
16	3.8	3.0	8.7	12	65	69	97	23	10	8.7	9.4	4.6
17	3.4	3.4	8.4	11	54	57	164	22	9.0	8.0	9.0	4.2
18	3.2	3.6	8.7	11	55	52	145	21	59	27	9.0	3.8
19	3.2	10	8.0	12	49	47	129	19	46	16	12	3.6
20	4.2	13	7.1	11	45	46	100	19	30	11	11	3.6
21	5.5	6.5	7.4	11	40	41	85	19	22	9.8	9.0	4.0
22	4.4	5.0	7.1	18	35	40	85	19	29	9.8	8.0	4.0
23	3.8	4.6	6.5	22	30	35	65	18	45	8.7	7.4	3.6
24	3.8	5.2	6.8	16	30	33	57	15	27	8.4	7.1	3.4
25	4.0	5.7	7.1	13	27	32	52	14	21	8.0	7.1	3.2
26	3.6	6.0	6.0	13	36	30	49	14	18	7.1	6.8	3.2
27	3.6	6.0	7.0	15	76	28	46	13	16	6.8	6.2	3.4
28	3.4	6.0	5.5	14	325	90	42	13	27	7.1	6.0	3.6
29	3.4	6.2	6.8	15	15	50	62	12	24	684	6.0	12
30	3.4	9.0	7.7	141	81	96	11	21	188	5.5	15	
31	3.4		7.4	145	76			11	71	5.2		
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				114.5	6.8	3.2	3.69	0.122	0.14			
November.....				153.2	13	3.0	5.11	.169	.19			
December.....				382.1	74	5.5	12.3	.407	.47			
Calendar year 1938				7,140.9	326	2.9	19.6	.649	8.79			
January.....				711.8	145	6.8	23.0	.762	.88			
February.....				2,460	337	27	87.9	2.91	3.03			
March.....				2,148	190	28	69.3	2.29	2.64			
April.....				2,108	164	42	70.3	2.33	2.60			
May.....				854	82	11	27.5	.911	1.05			
June.....				654.0	59	9.0	21.8	.722	.81			
July.....				1,293.5	684	6.8	41.7	1.38	1.59			
August.....				435.5	47	5.2	14.0	.464	.53			
September.....				157.0	15	3.2	5.23	.173	.19			
Water year 1938-39				11,471.6	684	3.0	31.4	1.04	14.12			

Licking Creek near Sylvan, Pa.

Location.- Chain gage, lat. 39°43'20", long. 78°03'35", at highway bridge 200 feet north of Pennsylvania-Maryland State line, 3 miles southwest of Sylvan, Franklin County, and 10 miles above mouth. Zero of gage is 434.16 feet above mean sea level (general adjustment of 1907).

Drainage area.- 158 square miles.

Records available.- June 1930 to September 1939.

Extremes.- Maximum discharge during year, 5,160 second-feet Feb. 3 (gage height, 10.3 feet, from graph based on gage readings); minimum, 7.5 second-feet Sept. 25 (gage height, 0.94 foot).

1930-39: Maximum discharge, 20,700 second-feet Mar. 18, 1936 (gage height, 17.4 feet, from floodmark), from rating curve extended on basis of contracted-opening determination; minimum, 3.0 second-feet Aug. 8, 1930 (gage height, 0.64 foot).

Remarks.- Records poor. Discharge for periods of ice effect, Nov. 25-29, Dec. 27 to Jan. 1, Jan. 13-29, computed on basis of gage heights, weather records, two discharge measurements, and records for nearby stations. Gage read twice daily.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	16	85	50	571	1,660	246	214	35	200	69	11
2	18	14	124	58	410	755	292	184	60	132	62	12
3	16	16	102	74	1,910	502	246	166	153	88	40	9.5
4	14	14	105	95	2,430	410	224	140	88	70	41	25
5	14	17	181	102	862	410	194	140	68	213	34	145
6	14	28	360	157	569	470	198	132	53	345	28	62
7	16	35	288	175	439	470	329	124	46	194	25	31
8	17	32	184	157	355	382	257	116	44	132	40	20
9	16	26	140	140	292	329	235	106	39	124	37	19
10	15	24	2,200	124	304	280	235	102	43	81	28	20
11	14	21	1,100	116	439	235	224	92	82	62	22	26
12	12	20	472	103	470	224	347	87	67	51	19	16
13	13	17	292	92	382	507	304	86	43	44	17	16
14	19	17	204	80	329	604	280	94	44	96	14	16
15	22	17	166	76	304	470	257	92	38	112	13	15
16	20	16	124	76	382	410	246	81	34	54	13	13
17	19	16	109	78	257	329	678	75	28	40	12	15
18	17	16	109	72	257	268	920	71	46	41	13	13
19	15	19	94	66	235	224	965	68	71	48	19	11
20	18	39	75	62	214	214	715	66	95	45	34	11
21	29	116	71	60	184	194	502	70	83	34	106	10
22	26	62	75	62	166	175	470	83	57	30	34	11
23	29	54	60	64	140	157	382	77	1,160	25	21	9.1
24	23	46	60	60	124	148	304	60	339	26	18	9.1
25	21	37	61	56	124	140	268	53	175	23	17	7.5
26	19	33	54	54	148	124	257	51	116	22	16	8.2
27	17	32	60	52	292	127	246	48	82	26	19	8.2
28	17	33	50	50	854	236	204	46	64	164	16	8.2
29	18	42	47	50		194	214	44	146	85	13	72
30	17	53	46	310		157	214	42	374	194	12	466
31	14		46	1,060		194		37		112	10	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				558	29	12	18.0	0.114	0.13			
November.....				928	116	14	30.9	.196	.22			
December.....				7,144	2,200	46	230	1.46	1.68			
Calendar year 1938.....				38,124.9	2,200	9.9	104	.658	8.97			
January.....				3,831	1,060	50	124	.785	.90			
February.....				13,423	2,430	124	479	3.03	3.16			
March.....				10,999	1,660	124	355	2.25	2.59			
April.....				10,453	965	194	348	2.20	2.46			
May.....				2,847	214	37	91.8	.581	.67			
June.....				3,773	1,160	28	126	.797	.89			
July.....				2,915	345	22	94.0	.595	.69			
August.....				860	105	10	27.7	.175	.20			
September.....				1,112.8	466	7.5	37.1	.235	.26			
Water year 1938-39				58,843.8	2,430	7.5	161	1.02	13.85			

OHIO RIVER BASIN

Allegheny River at Larabee, Pa.

Location.- Wire-weight gage, lat. 41°54'05", long. 78°23'05", at bridge on U.S. Highway 6 at Larabee, McKean County, 1 mile below mouth of Potato Creek and 3½ miles south of Eldred. Zero of gage is 1,423.39 feet above mean sea level (general adjustment of 1912).

Drainage area.- 541 square miles.

Records available.- October 1920 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; June 1915 to September 1939 in reports of Pennsylvania Department of Forests and Waters (discontinued).

Average discharge.- 15 years (1920-21, 1925-39), 805 second-feet.

Extremes.- Maximum discharge during year, 4,930 second-feet Feb. 21 (gage height, 12.7 feet, from graph based on gage readings); minimum, 26 second-feet Sept. 25.

1915-39: Maximum discharge, 8,210 second-feet Nov. 18, 1927 (gage height, 17.6 feet, from graph based on gage readings), from rating curve extended above 4,300 second-feet; minimum, about 0.1 second-foot July 25, 1934 (gage height, 0.22 foot); minimum daily discharge, 3.5 second-feet Aug. 8, 1934.

Remarks.- Records fair except those for periods of ice effect, Nov. 26-29, Dec. 17 to Jan. 2, Jan. 14 to Feb. 9, which were computed on basis of gage heights, weather records, and records for stations downstream, and are poor. Gage read twice daily. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	146	97	438	240	340	2,660	3,320	574	229	493	550	33			
2	130	90	396	260	390	2,020	3,200	516	215	302	354	33			
3	115	77	354	291	450	1,710	2,740	471	196	106	354	31			
4	110	87	1,250	344	420	1,630	2,240	428	181	93	322	31			
5	106	87	1,630	525	380	1,840	1,880	396	169	93	291	41			
6	157	105	1,590	1,770	360	2,540	1,840	396	148	97	207	47			
7	271	108	1,550	1,710	360	2,440	1,980	354	137	89	159	47			
8	202	97	1,350	1,470	380	2,540	1,350	344	128	77	137	56			
9	153	205	1,240	1,210	430	2,200	1,240	344	117	103	162	54			
10	127	130	1,430	1,210	622	1,930	1,210	375	118	98	200	47			
11	113	100	1,100	1,280	950	1,590	1,280	333	139	81	134	44			
12	110	103	980	1,070	920	1,550	1,240	291	135	66	90	41			
13	105	120	890	920	860	2,060	1,140	271	151	93	79	44			
14	117	227	747	840	831	1,510	1,100	261	169	251	76	46			
15	130	175	696	740	1,910	2,060	1,180	241	151	155	73	41			
16	113	162	562	680	2,840	2,060	2,060	231	123	106	65	38			
17	97	151	510	610	2,540	1,550	1,880	241	106	77	56	37			
18	93	182	490	560	2,160	1,320	1,630	215	100	68	53	35			
19	92	640	460	520	1,910	950	2,160	194	100	62	53	33			
20	93	1,610	430	480	3,680	1,040	1,840	196	90	56	59	31			
21	113	1,180	400	520	4,810	950	1,550	428	97	50	56	31			
22	128	950	360	530	4,630	860	1,590	610	106	47	53	33			
23	113	802	330	510	4,030	831	1,180	696	523	44	44	31			
24	100	721	320	460	3,150	920	1,040	598	436	44	44	30			
25	110	562	310	430	2,020	1,670	920	538	120	42	40	27			
26	105	500	300	400	1,630	2,740	860	493	93	42	42	30			
27	103	450	300	370	2,110	3,760	774	406	90	48	38	84			
28	137	430	290	340	1,930	4,090	721	386	81	65	40	323			
29	122	450	280	350		4,030	646	344	81	645	37	113			
30	110	493	270	350		3,590	622	291	303	1,590	34	117			
31	100		250	370		3,640		261		1,350	34				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				3,821		271		92		123		0.227		0.26	
November.....				11,091		1,610		77		370		.684		.76	
December.....				21,503		1,630		250		694		1.28		1.48	
Calendar year 1938				278,248		4,750		12		762		1.41		19.13	
January.....				21,360		1,770		240		689		1.27		1.46	
February.....				47,043		4,810		340		1,680		3.11		3.24	
March.....				64,281		4,090		831		2,074		3.83		4.42	
April.....				46,213		3,320		622		1,540		2.85		3.18	
May.....				11,723		696		194		378		.699		.81	
June.....				4,832		523		81		161		.298		.33	
July.....				6,533		1,590		42		211		.390		.45	
August.....				3,936		550		34		127		.235		.27	
September.....				1,629		323		27		54.3		.100		.11	
Water year 1938-39				243,965		4,810		27		668		1.23		16.77	

Allegheny River at Eldred, Pa.

Location.- Water-stage recorder, lat. 41°57'50", long. 78°23'10", at site of former highway bridge 1,000 feet above mouth of Knapp Creek and half a mile north of Eldred, McKean County. Zero of gage is 1,416.20 feet above mean sea level (preliminary levels of 1932).

Drainage area.- 550 square miles.

Records available.- July to September 1939.

Extremes.- Maximum discharge during period, 1,590 second-feet July 31 (gage height, 7.57 feet); minimum, 30 second-feet Sept. 25, 26.

Remarks.- Records good. Slight regulation at low stages from operation of small power installations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											651	34
2											401	33
3											355	32
4											330	31
5											342	37
6											257	42
7											199	50
8											163	59
9											162	69
10											197	56
11											174	45
12											129	42
13										66	110	42
14										184	100	42
15										221	106	44
16										118	87	41
17										88	76	39
18										78	68	35
19										71	65	34
20										65	72	32
21										60	72	32
22										54	64	32
23										50	58	33
24										47	53	32
25										45	49	30
26										44	46	30
27										45	44	60
28										69	41	285
29										418	39	182
30										1,190	37	252
31										1,350	36	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches		
October.....												
November.....												
December.....												
Calendar year 1938												
January.....												
February.....												
March.....												
April.....												
May.....												
June.....												
July..13-31.....					4,263	1,350	44	224	0.407	0.29		
August.....					4,582	651	36	148	.269	.31		
September.....					1,807	285	30	60.2	.109	.12		
Water year 1938-39												

Allegheny River near Kinzua, Pa.

Location.- Water-stage recorder, lat. 41°50'50", long. 78°59'30", at Pennsylvania Railroad bridge, half a mile above mouth of Bent Run, 2 miles southwest of Kinzua, Warren County, and 2.3 miles below mouth of Kinzua Creek. Zero of gage is 1,200.00 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 2,179 square miles.

Records available.- October 1935 to September 1939.

Extremes.- Maximum discharge during water year 1935-36, 41,000 second-feet Mar. 28 (gage height, 16.69 feet); minimum, 135 second-feet Sept. 15 (gage height, 4.57 feet). Maximum discharge during water year 1936-37, 31,700 second-feet Jan. 25 (gage height, 14.85 feet); minimum, 180 second-feet Oct. 9 (gage height, 4.74 feet). Maximum discharge during water year 1937-38, 26,800 second-feet Feb. 14 (gage height, 13.48 feet); minimum, 262 second-feet Sept. 6, 7 (gage height, 4.85 feet). Maximum discharge during water year 1938-39, 33,500 second-feet Feb. 20 (gage height, 15.02 feet); minimum, 162 second-feet Sept. 3 (gage height, 4.52 feet).

Remarks.- Records good except those prior to Jan. 25, 1938, which are fair, and those for periods of recorder failure and periods of ice effect, which are poor. Discharge for periods of recorder failure, Oct. 1, 2, 1935, Feb. 29 to Mar. 8, May 4, 5, May 15 to June 3, 1936, Sept. 15 to Dec. 8, Dec. 13, 1937, Jan. 18-24, Feb. 28 to Mar. 2, May 22-26, 1938, computed on basis of weather records, range in stage shown by recorder graph, and records for stations at Red House and Franklin. Discharge for

Discharge, in second-feet, water year October 1935 to September 1936.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	850	1,480	2,160	1,400	980	10,000	19,400	4,290	940	596	223	256
2	860	1,280	1,800	1,600	950	8,000	14,800	4,060	880	477	210	260
3	954	1,170	1,700	2,100	940	6,400	12,500	4,910	850	558	197	260
4	1,060	1,080	1,500	3,200	1,000	5,200	10,100	4,500	790	506	200	230
5	966	1,060	1,400	5,430	960	9,000	8,300	3,900	730	407	210	207
6	897	1,140	1,300	4,780	900	9,500	11,300	3,580	684	352	284	191
7	800	1,190	1,500	4,540	860	9,200	14,800	3,070	657	319	245	180
8	750	1,350	1,900	3,940	840	7,200	11,900	2,770	721	301	230	171
9	702	1,370	5,560	3,820	820	11,000	9,940	2,520	1,090	284	408	163
10	648	1,380	6,680	4,060	820	16,900	8,940	2,310	1,100	267	338	155
11	630	1,380	5,430	3,940	800	22,900	8,300	2,090	1,010	252	275	150
12	606	1,590	4,660	3,820	800	32,100	8,620	1,880	1,930	241	230	145
13	574	2,570	4,170	3,710	780	27,600	9,600	1,880	1,450	237	204	142
14	550	4,060	3,710	3,820	780	22,500	8,600	2,070	1,090	227	369	137
15	528	3,940	3,710	4,060	770	19,000	7,700	1,900	897	217	328	135
16	484	3,380	5,170	3,500	760	17,300	7,280	1,700	770	214	309	158
17	458	3,070	5,300	3,000	760	16,900	6,390	1,600	684	214	263	204
18	458	2,670	4,290	2,600	740	16,900	5,560	1,400	730	207	248	347
19	458	2,400	3,710	2,200	740	19,900	5,170	1,700	864	194	270	296
20	446	2,250	3,100	2,000	720	23,900	4,780	2,200	842	182	400	263
21	439	2,160	2,700	1,800	720	22,100	5,040	1,900	750	177	275	227
22	499	2,070	2,400	1,700	710	16,900	7,260	1,700	606	174	271	200
23	720	1,850	2,200	1,500	700	13,600	6,250	1,500	528	177	256	182
24	842	1,600	2,000	1,400	1,600	14,800	5,040	1,300	484	271	248	185
25	853	1,440	1,800	1,300	4,000	24,600	4,410	1,200	445	260	245	223
26	760	1,370	1,700	1,200	10,300	30,800	3,940	1,200	419	223	237	191
27	684	1,350	1,600	1,200	22,500	39,800	3,600	1,200	407	248	217	191
28	622	1,560	1,500	1,100	14,800	37,500	3,280	1,300	402	263	197	217
29	786	2,120	1,400	1,100	13,000	30,300	3,940	1,200	379	267	248	214
30	1,460	2,380	1,400	1,000	24,800	24,800	4,410	1,100	551	241	275	197
31	1,390		1,400	1,000		23,900		1,000		230	267	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					22,723	1,480	439	733	0.336		0.39	
November.....					57,690	4,060	1,060	1,923	.883		.99	
December.....					88,850	6,680	1,300	2,866	1.32		1.52	
Calendar year 1935.....												
January.....					81,820	5,430	1,000	2,639	1.21		1.40	
February.....					85,050	22,500	700	2,933	1.35		1.46	
March.....					590,500	39,800	5,200	19,050	8.74		10.08	
April.....					241,130	19,400	3,280	8,038	3.69		4.12	
May.....					68,630	4,910	1,000	2,214	1.02		1.18	
June.....					23,680	1,930	379	789	.362		.40	
July.....					8,783	696	174	283	.130		.15	
August.....					8,177	408	197	264	.121		.14	
September.....					6,077	347	135	204	.094		.10	
Water year 1935-36					1,283,110	39,800	135	3,506	1.61		21.93	

Allegheny River near Kinzua, Pa.
(Continued)

periods of ice effect, Dec. 2-8, 20-31, 1935, Jan. 1-4, Jan. 16 to Feb. 25, Mar. 9, Nov. 27 to Dec. 16, Dec. 24, 1936, Feb. 5-7, Feb. 27 to Mar. 3, Dec. 9-12, 14-17, 1937, Jan. 6-17, 25-29, Feb. 1-3, 27, Mar. 3-5, 12, 13, Nov. 27 to Dec. 2, Dec. 16-31, 1938, Jan. 1-4, Jan. 21 to Feb. 18, 1939, computed on basis of gage heights, weather records, engineer's observations, and records for stations at Red House and Franklin. Gage-height records and discharge measurements prior to Dec. 15, 1938, furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1936 to September 1937.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	204	1,030	1,400	11,400	5,560	1,900	3,380	15,200	2,870	2,200	630	954			
2	207	1,210	1,300	6,260	4,540	1,700	4,410	11,700	2,460	1,970	574	930			
3	191	2,970	1,300	8,300	3,710	1,700	5,300	8,940	2,240	1,880	535	984			
4	182	3,420	1,300	7,400	3,070	2,090	5,170	6,960	2,200	1,710	499	1,090			
5	182	5,970	1,300	5,840	2,900	3,680	6,120	5,970	1,980	1,540	471	1,420			
6	188	6,530	1,700	4,540	2,800	4,410	9,810	9,180	1,740	1,420	654	1,420			
7	230	5,840	2,700	3,940	2,700	3,710	10,300	11,700	1,580	1,260	3,240	1,380			
8	210	5,840	2,600	6,530	2,670	3,380	8,000	8,940	1,410	1,130	5,900	1,130			
9	185	5,700	2,500	7,700	6,650	3,380	7,550	7,400	1,260	1,040	3,400	954			
10	207	5,170	3,200	7,550	7,550	2,870	8,000	6,390	2,350	1,010	4,950	842			
11	230	4,410	4,200	6,390	4,910	2,770	7,110	5,300	3,490	1,340	10,800	842			
12	230	3,600	6,000	5,560	3,820	2,590	6,250	4,540	2,580	2,150	9,960	842			
13	237	3,070	5,600	4,780	3,600	2,160	5,450	4,910	1,900	2,070	6,960	780			
14	260	2,770	5,100	9,710	3,490	2,020	4,910	5,840	2,600	1,650	4,540	740			
15	271	3,380	4,600	23,600	3,490	1,850	12,200	5,970	4,910	1,560	3,070	700			
16	248	3,940	4,200	22,100	3,070	1,730	16,500	5,560	4,780	2,220	2,350	660			
17	328	3,490	3,820	16,100	2,650	1,650	11,800	5,970	3,710	2,150	1,900	620			
18	374	3,070	3,180	17,300	2,500	1,580	8,940	8,620	10,600	1,970	1,760	600			
19	648	2,770	4,660	16,900	2,400	1,580	9,260	7,400	18,600	1,670	1,560	560			
20	720	2,440	6,250	12,500	2,330	1,620	7,400	6,110	12,500	1,340	1,480	550			
21	622	2,350	9,260	14,700	2,370	2,370	6,110	5,170	10,100	1,180	1,390	580			
22	506	2,380	8,620	19,000	3,710	3,070	8,360	4,540	21,600	1,060	2,600	560			
23	432	2,290	7,260	17,300	4,170	3,490	11,700	5,040	16,900	978	2,380	500			
24	413	2,110	6,200	15,800	3,600	3,940	10,600	5,170	9,720	966	3,070	460			
25	413	2,040	5,700	29,600	3,070	4,910	9,260	4,170	6,530	1,190	2,440	420			
26	713	1,930	5,840	28,500	2,770	4,910	14,100	3,600	4,910	1,080	1,970	390			
27	1,030	1,800	7,850	22,500	2,300	3,940	17,700	4,290	3,820	1,050	1,730	410			
28	1,000	1,700	12,000	16,500	2,000	3,380	20,100	5,700	3,380	954	1,500	430			
29	886	1,600	11,000	11,700		3,070	23,900	4,910	2,970	842	1,340	410			
30	820	1,500	9,260	8,620		2,870	19,000	3,940	2,520	750	1,190	400			
31	886		10,800	6,680		2,870		3,280		684	1,060				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				13,453		1,030		182		434		0.199		0.23	
November.....				96,220		6,530		1,030		3,207		1.47		1.64	
December.....				160,700		12,000		1,300		5,184		2.38		2.74	
Calendar year 1936				1,384,220		39,800		135		3,782		1.74		23.64	
January.....				398,300		29,600		3,940		12,850		5.90		6.80	
February.....				98,400		7,550		2,000		3,514		1.61		1.68	
March.....				87,170		4,910		1,580		2,812		1.29		1.49	
April.....				298,670		23,900		3,380		9,956		4.57		5.10	
May.....				202,410		15,200		3,280		6,529		3.00		3.46	
June.....				168,210		21,600		1,260		5,607		2.57		2.87	
July.....				43,914		2,220		684		1,417		.660		.75	
August.....				85,603		10,500		471		2,761		1.27		1.46	
September.....				22,528		1,420		390		751		.345		.38	
Water year 1936-37				1,675,578		29,600		182		4,591		2.11		28.60	

Allegheny River near Kinzua, Pa.
(Continued)

Discharge, in second-feet, water year October 1937 to September 1938.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	370	6,800	3,500	6,600	5,000	2,700	4,220	2,760	2,050	3,290	1,530	312
2	340	5,400	3,000	8,000	4,100	3,100	3,980	2,500	1,770	2,980	1,740	300
3	320	4,500	2,600	5,840	3,700	2,900	3,620	2,270	1,820	2,540	1,400	288
4	310	3,700	2,100	4,540	6,560	2,600	3,400	2,110	1,890	2,090	1,230	284
5	310	3,100	2,200	3,940	6,410	2,400	3,290	2,090	1,660	1,710	1,470	276
6	330	2,700	2,200	3,300	8,210	18,500	3,070	1,950	1,450	1,440	1,160	266
7	370	2,400	2,100	2,900	15,000	20,500	2,960	1,770	1,540	1,240	1,140	273
8	410	2,200	1,900	2,500	13,000	15,000	2,980	1,630	1,300	1,090	933	320
9	430	2,500	1,700	2,100	10,700	11,180	4,460	1,530	1,270	1,280	859	316
10	440	2,500	1,600	1,700	12,600	7,810	7,020	1,580	1,130	1,440	732	338
11	430	2,300	1,450	1,800	10,400	5,820	6,410	1,660	1,130	1,450	1,640	348
12	410	2,000	1,350	1,800	7,970	4,700	11,200	1,660	1,260	1,840	2,180	361
13	380	3,700	1,200	1,650	19,000	4,100	15,400	1,520	1,450	1,690	1,560	743
14	370	6,600	1,150	1,500	25,800	8,300	15,400	1,380	1,710	1,440	1,070	1,220
15	370	6,000	1,500	1,400	21,400	8,140	13,700	1,340	1,690	1,690	880	5,540
16	380	5,500	3,000	1,300	15,000	6,560	11,800	1,440	1,340	1,400	890	6,560
17	400	5,000	8,000	1,200	10,700	7,970	9,990	1,740	1,160	1,120	789	3,640
18	440	4,500	16,000	1,150	11,000	8,630	8,630	1,690	1,060	1,050	713	2,230
19	720	4,100	15,600	1,100	15,400	7,650	8,300	1,500	977	1,030	620	1,710
20	1,350	3,700	11,400	1,050	13,400	6,710	7,970	1,450	900	1,010	654	1,470
21	1,700	3,300	10,600	1,000	9,990	6,410	7,020	1,820	839	890	590	1,270
22	1,500	3,000	8,940	980	7,970	5,960	6,410	1,650	812	849	524	1,240
23	3,000	2,700	6,680	1,500	6,710	5,540	6,110	2,000	918	933	471	2,940
24	6,300	2,400	5,040	2,500	5,680	6,110	5,400	2,600	849	1,610	424	3,290
25	4,500	2,200	4,410	7,000	4,990	7,650	4,680	4,000	998	3,410	397	2,500
26	3,400	2,700	3,820	6,800	4,340	7,180	4,340	3,400	3,190	1,760	376	1,880
27	5,000	3,200	3,380	5,400	3,700	6,710	3,860	2,960	6,900	1,160	357	1,580
28	7,000	3,600	2,970	3,800	3,200	5,680	3,570	2,660	8,140	1,540	343	1,340
29	10,000	4,000	2,670	3,000		4,860	3,180	2,660	6,110	2,070	325	1,160
30	9,600	3,800	2,520	3,860		4,340	2,960	3,070	4,600	1,760	320	1,030
31	8,400		2,480	6,280		4,100		2,640		1,380	316	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				69,280	10,000	310	2,235	1.03	1.19			
November.....				110,100	6,800	2,000	3,670	1.68	1.87			
December.....				136,860	16,000	1,150	4,415	2.03	2.34			
Calendar year 1937				1,721,445	29,600	310	4,716	2.16	29.38			
January.....				97,290	8,000	980	3,138	1.44	1.66			
February.....				281,930	25,800	3,200	10,070	4.62	4.81			
March.....				219,730	20,500	2,400	7,088	3.25	3.75			
April.....				195,330	15,400	2,860	6,511	2.99	3.34			
May.....				65,030	4,000	1,340	2,098	.963	1.11			
June.....				61,713	8,140	812	2,057	.944	1.05			
July.....				50,062	3,410	849	1,615	.741	.85			
August.....				27,633	2,180	316	891	.409	.47			
September.....				45,025	6,560	266	1,501	.689	.77			
Water year 1937-38				1,359,983	25,800	266	3,726	1.71	23.21			

Allegheny River near Kinzua, Pa.
(Continued)

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	933	654	2,100	920	1,600	11,100	12,600	2,350	933	497	2,350	173	
2	849	620	1,900	1,050	1,800	9,990	12,200	2,180	849	566	1,480	167	
3	779	590	1,910	1,400	2,100	7,490	10,300	2,040	808	574	1,050	165	
4	713	559	4,450	3,300	2,400	6,710	8,300	1,890	829	465	966	175	
5	670	567	8,140	5,960	2,200	7,330	7,020	1,760	742	402	859	231	
6	751	597	7,490	10,900	1,900	10,300	6,410	1,640	687	442	760	286	
7	911	590	6,710	11,400	1,700	11,100	6,710	1,550	620	387	696	280	
8	988	597	5,680	8,300	1,800	8,960	5,820	1,440	582	392	597	290	
9	911	670	4,860	6,260	2,500	8,140	5,120	1,450	567	430	597	284	
10	798	679	5,120	5,960	3,500	7,180	4,860	1,640	611	397	524	273	
11	723	696	5,400	7,650	4,000	6,110	5,960	1,580	751	371	477	262	
12	670	696	4,730	6,110	4,200	6,410	7,490	1,420	654	338	465	251	
13	637	762	4,100	4,730	4,000	9,990	6,560	1,280	605	325	436	251	
14	645	1,560	3,510	3,980	5,000	8,300	6,410	1,200	713	513	397	248	
15	662	1,630	3,070	3,400	6,800	7,650	9,990	1,140	670	491	352	238	
16	628	1,500	2,600	3,070	7,600	8,960	11,800	1,080	696	497	320	225	
17	605	2,200	2,400	2,960	7,200	7,650	8,960	1,050	662	465	304	215	
18	567	1,900	2,260	2,740	7,000	5,960	7,650	988	590	371	288	212	
19	531	7,200	2,100	2,400	8,190	4,730	8,300	944	531	320	266	203	
20	524	10,700	1,900	2,070	27,200	4,470	8,630	911	617	284	268	200	
21	552	8,140	1,800	1,800	30,800	4,220	7,180	1,010	490	266	255	189	
22	582	5,820	1,650	1,900	25,600	3,860	6,110	1,240	478	248	255	186	
23	590	4,600	1,500	2,100	16,200	3,620	5,400	1,440	531	238	244	175	
24	612	3,860	1,400	1,900	11,800	4,220	4,600	1,550	620	238	238	170	
25	662	3,290	1,500	1,800	8,630	7,760	4,100	1,450	717	231	222	167	
26	654	2,820	1,250	1,700	6,860	13,700	3,620	1,300	650	229	209	175	
27	687	2,400	1,200	1,600	6,860	18,400	3,400	1,190	504	304	200	302	
28	818	2,100	1,100	1,500	7,650	17,500	3,070	1,160	424	276	192	399	
29	779	2,100	1,000	1,450	13,300	2,800	2,900	1,230	402	638	186	510	
30	751	2,200	940	1,500	12,800	2,540	1,240	497	1,210	178	869		
31	704		920	1,600		14,100		1,070		2,680	175		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				21,886		988		524		706		0.324	0.37
November.....				72,297		10,700		559		2,410		1.11	1.24
December.....				94,480		8,140		920		3,048		1.40	1.61
Calendar year 1938.....				1,232,406		25,800		266		3,376		1.55	21.03
January.....				113,410		11,400		920		3,658		1.68	1.94
February.....				215,090		30,800		1,600		7,682		3.53	3.68
March.....				271,410		18,400		3,620		8,755		4.02	4.63
April.....				203,910		12,600		2,540		6,797		3.12	3.48
May.....				43,413		2,350		911		1,400		.642	.74
June.....				19,230		933		402		841		.294	.33
July.....				15,085		2,680		229		487		.223	.26
August.....				15,796		2,350		175		510		.234	.27
September.....				7,755		869		165		258		.118	.13
Water year 1938-39.....				1,093,762		30,800		165		2,997		1.38	18.68

Allegheny River at Franklin, Pa.

Location.- Water-stage recorder, lat. 41°23'25", long. 79°49'10", at Eighth Street Bridge, at Franklin, Venango County, 1,000 feet below mouth of French Creek. Zero of gage is 955.92 feet above mean sea level (preliminary levels of 1935).

Drainage area.- 5,982 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; April 1905 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 21 years (1918-39), 9,702 second-feet.

Extremes.- Maximum discharge during year, 77,900 second-feet Feb. 21 (gage height, 15.24 feet); minimum, 521 second-feet Sept. 26 (gage height, 1.72 feet).

1905-39: Maximum discharge, 191,000 second-feet Mar. 26, 1913, from rating curve extended above 110,000 second-feet; maximum gage height, 26.0 feet, present datum, Feb. 27, 1917 (backwater from ice); minimum discharge, 334 second-feet July 30, 1934 (gage height, 1.63 feet).

Maximum free-flow stage known, 25.0 feet, present datum, Mar. 17, 1865 (discharge, 196,000 second-feet, from rating curve extended above 110,000 second-feet).

Remarks.- Records good except those for periods of ice effect, Dec. 30 to Jan. 2, Jan. 23-29, which were computed on basis of gage heights, weather records, and records for stations upstream and downstream, and are fair.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,800	2,170	6,120	2,600	11,700	38,700	34,600	6,630	2,650	2,600	5,480	612
2	3,580	2,030	6,120	3,300	11,000	36,600	31,300	6,120	2,270	2,270	4,320	594
3	3,020	1,920	5,800	4,740	13,700	30,600	28,100	5,640	2,270	1,850	3,130	569
4	2,640	1,790	10,900	6,090	13,200	24,500	22,700	5,180	2,680	1,580	2,610	743
5	2,650	1,630	21,000	12,200	11,000	22,700	18,300	4,880	3,020	1,420	2,770	796
6	2,630	1,880	22,200	27,800	10,600	26,900	16,700	4,460	2,700	1,280	2,330	715
7	2,650	2,010	18,900	33,900	10,800	29,400	18,300	4,190	2,150	1,200	1,900	786
8	2,790	2,050	16,200	29,400	9,710	25,700	17,200	3,930	1,940	1,260	1,670	946
9	2,880	2,270	13,700	22,200	10,800	22,200	14,700	3,800	1,790	2,000	1,580	968
10	2,650	2,540	12,900	17,800	14,200	20,500	13,700	4,600	1,880	1,860	1,650	880
11	2,460	2,770	13,200	18,900	25,100	17,800	16,200	4,600	2,090	1,520	1,530	848
12	2,310	2,680	12,400	17,200	22,700	18,900	22,700	4,060	2,150	1,260	1,320	817
13	2,170	2,740	10,800	13,700	19,400	33,200	21,000	3,670	1,980	1,160	1,210	817
14	2,110	3,930	9,290	11,000	18,300	32,000	20,000	3,420	1,940	2,030	1,180	777
15	1,980	5,960	7,710	8,680	25,100	27,500	31,300	3,250	1,900	2,170	1,140	735
16	1,960	5,800	6,290	7,900	30,600	26,300	40,800	3,110	1,830	2,000	1,070	705
17	1,900	4,880	5,640	7,520	23,900	24,500	33,900	3,020	1,690	1,600	1,010	695
18	1,830	5,030	5,640	7,160	20,500	20,000	27,500	2,900	1,670	1,380	979	657
19	1,740	13,000	5,480	6,460	21,000	15,200	25,700	2,740	1,580	1,240	968	621
20	1,600	26,900	5,180	5,800	50,500	13,700	23,900	2,650	1,520	1,090	924	603
21	1,690	25,100	4,980	5,480	76,000	12,400	21,600	2,840	1,450	1,000	913	577
22	1,610	18,300	4,600	5,640	61,400	11,400	17,800	3,670	1,380	924	913	569
23	1,900	13,200	4,060	4,800	46,000	10,600	15,200	3,800	1,920	870	924	553
24	1,960	10,600	4,060	4,000	33,200	10,400	13,200	3,930	3,400	948	859	545
25	2,000	8,480	4,190	3,300	26,300	13,100	11,400	3,670	2,650	817	828	537
26	2,110	7,340	4,060	2,900	22,700	20,500	10,100	3,420	2,050	796	806	561
27	2,230	6,630	4,060	2,650	22,700	29,400	9,500	3,160	1,830	765	775	876
28	2,400	5,800	2,610	2,500	25,700	35,900	8,880	3,000	1,520	796	745	1,100
29	2,610	5,480	2,310	2,600	31,300	7,900	2,970	2,970	1,300	1,220	705	1,200
30	2,610	5,800	2,200	2,280	27,500	7,160	3,040	3,040	1,600	3,600	675	1,570
31	2,400		2,150	16,000	37,300		2,880			5,640	648	
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....				73,040		3,800	1,600	2,356	0.394		0.45	
November.....				200,910		26,900	1,790	6,697	1.12		1.25	
December.....				254,450		22,200	2,150	8,208	1.37		1.58	
Calendar year 1938				3,675,270		65,800	900	10,070	1.68		22.82	
January.....				323,400		33,900	2,600	10,430	1.74		2.01	
February.....				687,810		76,000	9,710	24,560	4.11		4.28	
March.....				746,700		38,700	10,400	24,090	4.03		4.65	
April.....				601,540		40,800	7,160	20,040	3.35		3.74	
May.....				119,230		6,630	2,650	3,846	.643		.74	
June.....				60,900		3,400	1,300	2,030	.339		.38	
July.....				49,946		5,640	765	1,611	.269		.31	
August.....				47,562		5,480	648	1,534	.256		.30	
September.....				22,970		1,570	537	766	.128		.14	
Water year 1938-39				3,188,258		76,000	537	8,735	1.46		19.83	

Allegheny River at Parkers Landing, Pa.

Location.- Water-stage recorder, lat. 41°06'05", long. 79°40'45", at highway bridge at Parkers Landing, Armstrong County, 1.1 miles below mouth of Clarion River. Zero of gage is 845.14 feet above mean sea level (general adjustment of 1907).

Drainage area.- 7,671 square miles.

Records available.- October 1932 to September 1939.

Extremes.- Maximum discharge during year, 86,800 second-feet Feb. 21 (gage height, 15.07 feet); minimum, 638 second-feet Sept. 26 (gage height, 0.88 foot).

1932-39: Maximum discharge, 149,000 second-feet Jan. 25, 1937; maximum gage height, 27.85 feet Mar. 5, 1934 (backwater from ice); minimum discharge, 409 second-feet July 30, 1934 (gage height, 0.67 foot).

Maximum stage known, 29.0 feet Mar. 17, 1865 (discharge, 250,000 second-feet, from rating curve extended above 125,000 second-feet).

Remarks.- Records good except those for periods of ice effect, Dec. 29 to Jan. 1, Jan. 25-31, which were computed on basis of gage heights, weather records, one discharge measurement, and records for stations at Franklin and Kittanning, and are fair. Regulation at low stages from power operations on Clarion River.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	4,640	2,720	7,170	3,200	19,400	45,300	41,700	9,050	3,480	2,300	6,150	704	
2	4,170	2,660	7,530	4,640	17,500	43,100	38,200	8,860	3,200	2,890	5,520	687	
3	3,640	2,440	7,000	5,370	22,100	36,800	34,800	7,900	2,940	2,520	4,500	670	
4	3,400	2,400	9,690	6,650	22,100	29,700	29,100	6,820	3,300	2,120	3,560	704	
5	3,250	2,400	21,100	12,500	16,300	27,900	23,800	6,320	3,510	1,890	4,230	970	
6	3,020	2,350	24,900	25,400	15,300	31,000	21,600	5,830	3,510	1,840	3,400	1,040	
7	3,140	2,590	21,600	37,500	16,300	32,900	23,200	5,220	3,040	1,710	2,520	930	
8	3,090	2,300	18,900	32,200	14,300	31,000	22,600	4,950	2,790	1,840	2,090	966	
9	3,220	2,440	16,300	25,500	15,300	26,700	18,900	5,080	2,820	1,820	2,020	1,130	
10	3,400	2,640	14,300	21,000	18,400	24,300	17,300	5,370	2,440	2,320	1,930	1,190	
11	3,090	2,960	14,300	19,900	32,900	22,100	18,900	5,990	2,520	2,400	1,910	1,060	
12	2,960	3,090	14,300	19,900	29,100	24,700	24,300	5,680	2,590	1,840	1,800	1,020	
13	2,740	2,990	12,900	17,300	24,900	41,700	24,900	5,080	2,790	1,640	1,710	1,020	
14	2,560	3,510	10,900	12,900	22,600	38,900	23,800	4,220	2,920	1,640	1,490	1,000	
15	2,490	5,090	9,450	10,200	28,700	33,600	29,000	4,120	2,640	2,690	1,470	966	
16	2,370	6,480	7,900	9,850	40,300	31,600	44,600	4,170	2,620	2,520	1,490	912	
17	2,350	5,830	7,170	9,050	31,600	30,500	40,300	4,010	2,470	2,280	1,270	894	
18	2,320	5,520	6,480	8,960	26,700	26,100	32,900	3,820	2,160	2,210	1,170	858	
19	2,320	9,530	7,100	8,280	24,900	19,900	30,300	3,560	2,140	1,730	1,120	806	
20	2,070	24,500	6,480	7,170	48,100	17,300	28,500	3,380	2,350	1,370	1,120	772	
21	2,070	27,900	6,150	7,000	82,100	15,800	26,100	3,170	2,160	1,210	1,060	738	
22	2,090	21,600	5,680	6,480	72,200	14,300	22,100	4,390	2,000	1,100	1,150	704	
23	2,180	16,900	5,220	6,500	53,700	13,400	18,500	6,030	1,960	1,000	1,170	687	
24	2,420	12,400	4,930	5,840	40,300	12,400	15,800	5,750	3,070	930	1,040	670	
25	2,560	10,400	5,080	4,500	30,300	13,400	14,300	4,930	3,740	876	948	654	
26	2,470	8,470	5,080	3,500	26,700	18,900	12,900	4,780	2,640	858	912	654	
27	2,690	7,350	4,780	2,900	27,300	27,900	12,000	4,170	2,490	876	858	876	
28	2,860	6,820	3,600	2,700	31,600	38,200	11,100	3,300	2,550	840	823	1,560	
29	2,840	5,520	3,000	2,900	36,200	10,200	3,380	2,000	930	806	1,810	1,810	
30	2,990	6,150	2,700	11,000	32,800	9,250	3,660	1,800	1,950	755	2,470	2,470	
31	3,020		2,700	26,000		49,800		3,560		5,570	721		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				88,430		4,640		2,070		2,853		0.372	0.43
November.....				216,850		27,900		2,300		7,228		.942	1.05
December.....				294,290		24,900		2,700		9,493		1.24	1.43
Calendar year 1938				4,514,492		71,800		986		12,370		1.61	21.89
January.....				376,690		37,500		2,700		12,150		1.58	1.82
February.....				850,800		82,100		14,300		30,390		3.96	4.12
March.....				887,300		49,800		12,400		28,620		3.73	4.30
April.....				720,550		44,600		9,250		24,020		3.13	3.49
May.....				156,530		9,050		3,170		5,049		.658	.76
June.....				80,640		3,740		1,800		2,688		.350	.39
July.....				57,710		5,570		840		1,862		.243	.28
August.....				60,713		6,150		721		1,958		.255	.29
September.....				29,122		2,470		654		971		.127	.14
Water year 1938-39.....				3,819,625		82,100		654		10,460		1.36	18.50

Allegheny River at Kittanning, Pa.

Location.- Water-stage recorder, lat. 40°49'15", long. 79°31'55", 600 feet above dam at lock 7, at Kittanning, Armstrong County, 5½ miles above mouth of Crooked Creek, and 10 miles below mouth of Mahoning Creek. Zero of gage is 771.32 feet above mean sea level (general adjustment of 1912). Oct. 1, 1938, to Apr. 19, 1939, staff gage at same site and datum.

Drainage area.- 8,973 square miles (revised).

Records available.- August 1904 to September 1913, October 1918 to September 1921,

October 1938 to September 1939 in reports of U. S. Geological Survey; August 1904 to September 1928, October 1938 to September 1939 in reports of Pennsylvania Department of Forests and Waters. Records prior to Sept. 30, 1928, obtained at highway bridge 4,000 feet downstream.

Average discharge.- 23 years (1905-21, 1922-28, 1938-39), 16,260 second-feet.

Extremes.- Maximum discharge during year, 91,500 second-feet Feb. 21 (gage height, 19.5 feet); minimum, 928 second-feet Sept. 4 (gage height, 11.18 feet).

1904-28, 1938-39: Maximum discharge, 269,000 second-feet Mar. 26, 1913 (gage height, 30.7 feet, from floodmark, former site and datum); minimum observed, 570 second-feet Sept. 15-17, 1913.

Remarks.- Records good. Gage read eight times daily prior to Apr. 19. Regulation at low stages owing to operation of hydroelectric plant on Clarion River.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,120	3,160	7,700	3,790	31,500	56,700	52,800	9,700	4,040	2,600	6,680	1,060
2	4,580	2,750	8,350	5,120	24,700	54,100	48,900	10,000	3,790	3,330	6,220	1,060
3	4,300	2,750	8,020	5,120	36,300	46,300	45,000	9,210	3,470	3,080	5,290	980
4	3,610	2,750	9,350	6,500	35,100	37,500	36,300	7,960	3,420	2,600	4,040	1,010
5	3,160	2,750	20,800	10,300	24,700	33,900	30,300	7,160	3,700	2,340	5,140	1,170
6	2,750	2,750	28,000	24,800	20,400	36,300	25,800	6,860	3,790	2,230	4,620	1,360
7	2,950	2,750	24,700	41,100	21,400	38,700	29,100	6,000	3,510	2,160	3,200	1,360
8	3,160	2,750	21,400	38,700	21,400	36,300	28,000	5,620	3,200	2,270	2,680	1,310
9	3,160	2,750	18,400	30,300	20,400	31,500	24,700	5,730	3,330	2,640	2,380	1,360
10	3,420	2,750	16,400	23,600	24,700	29,100	20,400	6,060	3,040	2,720	2,230	1,530
11	3,610	2,750	15,400	21,400	43,700	26,900	21,400	6,680	2,790	2,750	2,160	1,470
12	3,510	3,080	15,400	22,500	41,100	30,300	25,800	6,560	2,950	2,340	2,090	1,450
13	2,990	3,160	14,500	19,400	32,700	56,700	29,700	6,000	3,160	2,030	2,000	1,450
14	2,750	3,250	12,800	16,400	28,000	62,800	26,900	4,850	3,290	2,090	1,950	1,450
15	2,600	4,300	9,700	12,000	34,000	43,700	29,100	4,620	3,120	2,910	1,770	1,390
16	2,750	6,500	8,680	9,700	51,500	41,100	50,200	4,740	2,950	3,040	1,770	1,360
17	2,750	6,800	8,020	9,700	42,400	38,700	47,600	4,520	2,950	2,790	1,710	1,280
18	2,750	6,820	7,100	9,700	35,100	33,900	41,100	4,300	2,830	2,640	1,470	1,200
19	2,750	7,820	7,100	9,700	30,500	25,800	35,100	4,100	3,120	2,270	1,470	1,200
20	2,720	22,200	7,100	8,020	45,200	21,400	32,700	3,990	3,120	1,930	1,470	1,200
21	2,380	31,500	6,800	7,700	85,000	19,400	30,300	3,650	2,950	1,680	1,470	1,140
22	2,380	24,700	6,800	7,400	81,700	17,400	26,400	5,220	3,320	1,530	1,470	1,090
23	2,580	18,400	5,950	7,400	62,300	15,400	22,000	7,900	4,250	1,590	1,470	1,060
24	2,380	13,600	5,400	6,800	47,600	14,500	17,900	7,960	3,420	1,360	1,450	1,030
25	2,520	12,000	5,400	6,220	36,300	14,500	16,400	6,440	4,460	1,310	1,330	1,030
26	2,520	9,700	5,400	4,300	32,700	18,400	15,000	5,900	3,700	1,250	1,250	1,060
27	2,750	8,350	5,400	3,080	33,900	26,900	13,600	5,560	2,990	1,310	1,200	1,090
28	2,750	7,520	4,580	2,250	40,000	39,900	12,400	4,300	2,950	1,250	1,170	1,360
29	2,750	6,500	3,250	4,580	42,400	11,600	3,790	2,600	1,530	1,140	1,140	1,930
30	2,950	6,060	3,160	12,600	37,500	10,800	4,150	2,480	2,010	1,140	1,140	2,300
31	3,160	6,060	3,160	45,300	51,500		3,940		4,840	1,060		
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					94,510	5,120	2,380	3,042	0.339		0.39	
November.....					232,320	31,500	2,750	7,744	.863		.96	
December.....					324,220	28,000	3,160	10,460	1.17		1.35	
Calendar year 1938												
January.....					436,480	45,500	3,080	14,080	1.57		1.81	
February.....					1,064,100	85,000	20,400	38,000	4.23		4.40	
March.....					1,069,500	56,700	14,500	34,500	3.84		4.43	
April.....					857,300	52,800	10,800	28,580	3.19		3.56	
May.....					183,370	10,000	3,650	5,915	.659		.76	
June.....					98,690	4,460	2,480	3,290	.367		.41	
July.....					70,220	4,840	1,250	2,265	.252		.29	
August.....					74,470	6,680	1,060	2,402	.268		.31	
September.....					38,740	2,300	980	1,291	.144		.16	
Water year 1938-39					4,543,720	85,000	980	12,450	1.39		18.83	

Allegheny River at Natrona, Pa.

Location.- Staff gage, lat. 40°36'50", long. 79°43'10", in upper pool at dam 4, at Natrona, Allegheny County, 6 miles below mouth of Kiskiminetas River and 24.2 miles above junction with Monongahela River at Pittsburgh. Zero of gage is 738.74 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 11,410 square miles.

Records available.- October 1938 to September 1939.

Extremes.- Maximum discharge during year, 103,000 second-feet Feb. 21 (gage height, 17.6 feet, observed at peak); minimum observed, 1,270 second-feet Sept. 27, 28 (gage height, 8.9 feet).

Maximum stage known, 32.06 feet Mar. 18, 1938 (discharge, 365,000 second-feet, determined by Corps of Engineers, U. S. Army).

Remarks.- Records good except those below 5,000 second-feet, which are fair. Discharge for period Oct. 17-21 computed on basis of records for station at Kittanning. Gage read four times daily during medium and low stages, and hourly during high stages. Slight regulation at low stages owing to power and navigation operations and storage in reservoirs upstream. Gage-height record and part of discharge measurements furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,800	3,920	9,100	5,250	48,100	77,400	62,500	15,600	4,700	6,400	8,400	1,580
2	4,980	3,420	10,200	6,400	36,400	67,500	57,800	16,500	4,700	7,050	7,050	1,580
3	4,700	3,180	9,850	6,400	59,200	54,800	53,300	14,700	4,700	5,800	6,400	1,580
4	4,440	3,180	11,400	8,400	64,600	43,400	42,000	13,000	4,700	4,700	5,250	1,760
5	4,170	3,180	21,300	10,800	39,600	38,200	34,500	11,000	5,250	3,920	5,250	1,650
6	3,660	3,180	29,800	23,800	31,000	43,400	31,000	9,850	5,250	3,660	5,900	1,580
7	3,660	3,180	27,600	40,400	33,300	47,500	35,700	9,480	4,700	3,660	4,170	2,010
8	3,660	3,180	24,400	40,700	33,300	43,400	34,500	8,400	4,170	3,660	3,420	1,900
9	3,660	3,180	21,300	32,200	32,200	36,900	31,000	8,050	4,980	3,660	3,180	1,580
10	3,660	3,180	19,300	26,600	37,600	33,300	26,600	8,400	4,980	3,660	3,180	1,580
11	3,660	3,180	18,400	22,500	65,400	31,000	26,600	8,750	4,440	3,660	3,180	1,930
12	3,660	3,180	17,400	23,400	66,400	38,200	31,000	9,100	4,170	3,420	2,980	2,010
13	3,660	3,660	16,500	21,500	42,000	70,600	34,500	7,700	4,170	2,820	2,820	1,930
14	3,420	3,920	14,700	18,400	35,700	62,500	31,000	6,720	4,170	3,180	3,180	1,930
15	3,180	5,250	13,000	13,000	40,300	50,400	34,500	6,400	4,170	5,800	2,660	1,930
16	3,180	7,050	10,600	11,400	64,100	47,500	57,800	8,100	4,170	5,250	2,250	1,760
17	3,200	8,050	9,100	11,400	51,800	43,400	60,900	6,400	4,170	4,170	2,250	1,930
18	3,200	7,580	8,750	11,000	42,000	38,200	53,300	5,800	5,800	3,660	2,010	1,930
19	3,200	9,100	9,100	10,600	36,900	29,800	46,100	5,800	4,700	3,660	1,930	1,650
20	3,200	20,300	8,750	9,480	46,100	24,400	40,700	5,250	5,250	2,980	1,930	1,580
21	3,200	32,200	8,400	8,400	90,600	23,400	36,900	5,250	5,250	2,520	1,930	1,580
22	2,730	26,600	8,400	8,400	90,600	20,300	32,200	6,400	6,500	2,010	1,930	1,580
23	2,730	20,300	7,700	8,400	68,900	18,400	27,600	9,850	18,400	1,930	1,930	1,580
24	2,730	16,500	6,720	8,400	51,800	18,400	23,400	9,850	13,800	1,760	1,930	1,580
25	2,730	13,000	6,400	8,400	40,700	16,500	20,500	8,400	9,100	1,580	1,930	1,580
26	2,980	11,000	7,580	7,700	35,700	20,500	18,400	7,700	7,050	1,580	1,580	1,580
27	2,980	9,850	6,720	5,250	44,700	27,600	17,400	6,400	5,250	1,580	1,580	1,420
28	3,180	8,400	6,400	4,700	49,000	42,000	16,500	5,800	4,700	1,860	1,580	1,370
29	3,420	7,700	5,250	6,400	46,100	14,700	14,700	4,700	4,700	2,120	1,580	2,350
30	3,660	7,050	4,980	17,800	42,000	14,700	4,980	4,700	3,420	1,580	1,580	3,180
31	3,920		5,250	74,300		62,500		4,980		4,700	1,580	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					110,170	5,800	2,730	3,554	0.311		0.36	
November.....					256,450	32,200	3,180	8,548	.749		.84	
December.....					384,160	29,800	4,980	12,390	1.09		1.26	
Calendar year 1938.....												
January.....					511,380	74,300	4,700	16,500	1.45		1.67	
February.....					1,368,000	90,600	31,000	46,260	4.28		4.46	
March.....					1,259,100	77,400	16,500	40,620	3.66		4.10	
April.....					1,047,400	62,500	14,700	34,910	3.06		3.41	
May.....					257,310	16,500	4,700	8,500	.727		.84	
June.....					173,060	18,400	4,170	8,769	.606		.66	
July.....					109,810	7,050	1,580	3,542	.310		.36	
August.....					96,350	8,400	1,580	3,108	.272		.31	
September.....					55,310	3,180	1,270	1,777	.166		.17	
Water year 1938-39.....					5,626,490	90,600	1,270	15,420	1.35		18.34	

Ohio River at Sewickley, Pa.

Location.- Water-stage recorder, lat. 40°31'50", long. 80°11'20", 200 feet above highway bridge at Sewickley, Allegheny County, half a mile above mouth of Narrows Run, and 1½ miles above Dashields Dam. Zero of gage is 690.00 feet above mean sea level (general adjustment of 1912).

Drainage area.- 19,500 square miles.

Records available.- October 1933 to September 1939.

Extremes.- Maximum discharge during year, 222,000 second-feet Feb. 4 (gage height, 15.50 feet); minimum, 2,400 second-feet Sept. 23 (gage height, 2.59 feet); minimum daily discharge, 2,550 second-feet Sept. 23, 27.

1933-39: Maximum discharge, 574,000 second-feet Mar. 18, 1936 (gage height, 34.75 feet, from floodmark in gage house); minimum, about 2,000 second-feet July 25, 1934; minimum daily discharge, 2,150 second-feet July 25, 1934.

Remarks.- Records good. Discharge for periods of recorder failure, Nov. 2-4, 8, 9, 22-25, Dec. 7-10, computed on basis of partial gage-height record and hourly reading of upper gage at Dashields Dam. Some regulation at low stages from operation of locks upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,180	4,890	13,600	9,670	135,000	117,000	90,600	24,000	6,360	38,600	17,500	2,900
2	6,520	4,620	14,700	10,400	81,800	106,000	81,800	28,800	7,630	34,100	16,600	2,900
3	5,820	4,960	14,900	9,560	112,000	86,200	75,200	26,300	9,450	20,100	14,300	2,800
4	5,520	4,420	14,300	11,000	207,000	70,900	64,600	22,400	16,200	16,800	12,300	3,060
5	5,100	4,620	24,700	15,200	138,000	60,400	53,300	19,900	20,600	11,800	9,560	3,440
6	5,310	4,890	39,600	28,600	79,600	78,200	47,300	17,400	16,900	20,100	9,120	2,850
7	5,240	4,960	41,400	47,300	81,800	95,000	60,400	14,500	11,600	16,800	7,630	3,380
8	5,170	5,900	38,600	46,300	88,400	77,400	64,600	13,500	11,100	15,700	8,100	3,740
9	5,100	5,170	35,800	36,700	79,600	68,800	52,300	13,500	12,400	23,200	7,000	3,440
10	5,170	5,600	31,300	30,400	86,200	60,400	42,400	14,300	10,800	18,000	7,090	3,390
11	5,240	6,360	27,100	27,900	115,000	52,300	46,300	13,900	9,560	14,400	5,680	3,170
12	4,890	6,200	27,900	28,800	124,000	57,300	52,300	13,900	7,720	11,600	5,900	3,120
13	5,100	5,520	29,600	27,900	90,600	94,100	64,600	12,100	7,540	9,230	5,100	3,500
14	5,240	5,170	27,100	24,700	73,000	113,000	57,300	11,000	8,400	8,900	4,890	3,560
15	4,560	6,050	24,700	16,500	70,900	86,200	56,300	10,000	8,700	10,600	4,160	3,680
16	4,560	8,100	18,800	15,200	97,200	79,600	89,200	10,200	8,200	8,800	4,360	3,500
17	4,560	9,450	15,700	15,800	86,200	73,000	161,000	10,500	7,720	6,840	4,160	2,950
18	4,360	9,890	12,300	16,800	70,900	62,500	152,000	9,890	7,090	7,180	4,100	3,340
19	4,420	11,600	11,300	16,400	60,400	47,300	106,000	9,540	7,630	6,840	4,040	3,000
20	4,980	21,200	12,400	15,500	60,400	38,600	90,600	9,010	28,600	6,050	3,920	2,850
21	4,620	38,600	11,700	15,400	97,200	37,600	77,400	8,600	30,000	5,680	3,560	2,950
22	4,500	36,700	11,500	14,400	113,000	33,100	68,800	8,800	20,800	10,200	3,860	2,700
23	4,230	29,600	10,700	23,100	90,600	29,600	54,300	12,000	32,000	15,600	3,740	2,550
24	4,100	23,200	10,000	29,600	70,900	26,300	41,400	14,000	39,600	11,200	3,860	2,850
25	4,420	16,100	8,600	27,100	57,300	24,000	36,700	12,900	25,800	11,000	3,860	2,850
26	4,620	16,500	8,500	22,400	51,500	24,700	33,100	10,900	16,400	10,100	3,740	2,600
27	4,680	11,600	9,780	17,100	68,800	31,300	28,800	9,670	13,000	11,100	2,950	2,550
28	4,680	9,890	9,450	13,800	84,000	47,300	27,900	8,660	15,600	9,670	2,950	2,650
29	4,680	10,700	11,000	11,900		60,400	27,900	7,540	26,100	10,700	3,120	3,370
30	4,750	11,600	11,200	34,800		62,500	24,000	7,720	32,200	12,800	3,280	3,760
31	4,820		10,700	143,000		84,000		7,900		13,000	3,000	
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....				153,920		7,180	4,100	4,965	0.255		0.29	
November.....				343,060		38,600	4,420	11,440	.587		.65	
December.....				588,930		41,400	8,500	19,000	.974		1.12	
Calendar year 1938				10,167,530		134,000	3,380	27,860	1.43		19.41	
January.....				803,030		143,000	9,560	25,900	1.33		1.53	
February.....				2,571,100		207,000	51,300	91,820	4.71		4.90	
March.....				1,985,000		117,000	24,000	64,030	3.28		3.78	
April.....				1,928,400		161,000	24,000	64,280	3.30		3.68	
May.....				412,930		28,800	7,540	13,320	.683		.79	
June.....				475,700		39,600	6,360	15,860	.813		.91	
July.....				425,590		38,600	5,680	13,760	.708		.81	
August.....				193,430		17,500	2,950	6,240	.320		.37	
September.....				93,400		3,760	2,550	3,113	.160		.18	
Water year 1938-39				9,975,490		207,000	2,550	27,330	1.40		19.01	

Brokenstraw Creek at Youngsville, Pa.

Location.- Water-stage recorder, lat. 41°51'10", long. 79°19'05", 150 feet below highway bridge at Youngsville, Warren County, 500 feet above mouth of Mathews Run, and 3.7 miles above confluence with Allegheny River. Prior to June 15, 1939, chain gage at highway bridge. Zero of gages is 1,187.92 feet above mean sea level (general adjustment of 1907).

Drainage area.- 321 square miles (revised; includes that of Mathews Run).

Records available.- October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; October 1909 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 25 years (1910-15, 1919-39), 542 second-feet.

Extremes.- Maximum discharge during year, 6,890 second-feet Feb. 20 (gage height, 8.3 feet, from graph based on gage readings); minimum, 36 second-feet Sept. 21, 26 (gage height, 0.08 foot).

1909-39: Maximum discharge, 14,300 second-feet Mar. 25, 1913 (gage height, 13.2 feet, present datum), from rating curve extended above 7,000 second-feet; minimum, 19 second-feet Oct. 14, 1934.

Remarks.- Records fair except those for periods of ice effect, Nov. 24 to Dec. 2, Dec. 14 to Jan. 2, Jan. 16-30, Feb. 24, 25, where were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Discharge for period of doubtful gage record, Apr. 30, computed on basis of records for nearby stations. Gage read twice daily prior to June 15.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	169	113	240	150	472	2,640	2,020	307	128	158	238	41
2	146	108	230	170	472	2,280	2,020	272	118	109	157	41
3	126	108	256	253	765	1,690	1,380	272	111	90	170	39
4	120	104	1,370	450	678	1,020	705	244	213	82	350	44
5	108	104	1,610	1,560	450	1,160	595	216	172	82	230	69
6	133	123	1,230	3,310	545	2,020	705	205	126	82	154	80
7	151	153	955	2,920	495	1,690	825	196	108	77	118	69
8	140	136	705	1,610	472	955	650	191	101	93	98	80
9	123	180	595	890	570	1,020	595	244	289	152	112	67
10	118	202	705	765	890	890	705	325	247	118	104	59
11	113	188	705	1,020	1,850	705	1,530	244	196	90	88	59
12	113	180	570	545	1,610	1,560	1,770	213	140	75	77	55
13	108	274	450	520	1,020	2,740	1,160	202	116	74	75	55
14	106	636	310	365	1,090	2,190	1,230	191	130	153	109	52
15	104	570	230	307	1,960	1,770	3,380	185	123	123	85	50
16	104	428	180	260	1,530	1,690	3,390	180	120	88	72	48
17	104	307	190	230	1,090	1,230	1,770	191	116	75	67	44
18	99	428	190	210	955	890	1,300	180	107	67	62	46
19	99	2,050	180	200	2,170	650	1,300	174	104	64	64	43
20	94	1,940	170	190	5,650	650	1,160	174	107	62	67	41
21	123	890	170	180	5,370	472	1,020	191	104	87	62	41
22	123	650	160	180	2,740	472	765	234	131	85	72	41
23	123	495	160	170	1,460	520	650	213	436	52	67	41
24	126	420	150	170	900	595	545	205	234	50	59	39
25	148	350	150	160	700	1,090	472	196	160	48	55	39
26	143	290	150	160	705	1,460	428	180	126	48	50	41
27	140	260	140	150	1,160	1,940	428	172	109	62	48	36
28	143	240	140	150	1,850	2,100	405	210	101	62	46	134
29	143	220	130	160	1,580	345	228	108	280	46	46	90
30	130	250	130	300	1,460	325	172	234	796	46	46	115
31	118		130	622		2,190		146		610	44	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					3,838	169	94	124	0.386		0.44	
November.....					12,377	2,050	104	413	1.29		1.44	
December.....					12,681	1,610	130	409	1.27		1.46	
Calendar year 1938					203,461	6,020	53	557	1.83		24.91	
January.....					18,327	3,310	150	591	1.84		2.12	
February.....					39,619	5,650	450	1,415	4.41		4.59	
March.....					43,119	2,740	472	1,391	4.33		4.99	
April.....					33,573	3,390	325	1,119	3.49		3.99	
May.....					6,553	325	146	211	.657		.76	
June.....					4,614	436	101	184	.480		.64	
July.....					4,034	796	48	130	.405		.47	
August.....					3,092	350	44	99.7	.311		.36	
September.....					1,751	134	39	58.4	.182		.20	
Water year 1938-39					183,578	5,650	39	503	1.57		21.26	

Tionesta Creek at Lynch, Pa.

Location.- Water-stage recorder, lat. 41°36'05", long. 79°03'00", at highway bridge at Lynch, Forest County, 500 feet above mouth of Bluejay Creek and 7 miles south of Sheffield. Zero of gage is 1,252.43 feet above mean sea level (preliminary levels of 1927).

Drainage area.- 233 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge during year, 3,500 second-feet Feb. 20 (gage height, 5.75 feet); minimum, 11 second-feet Sept. 24, 25 (gage height, 0.70 foot).

1938-39: Maximum discharge, that of Feb. 20, 1939: minimum, that of Sept. 24, 25, 1939.

Remarks.- Records good except those for periods of ice effect, Nov. 26 to Dec. 2, Dec. 15 to Jan. 3, Jan. 17-30, Feb. 4-6, 13, 17-19, 24, 25, Mar. 18-20, which were computed on basis of gage heights, weather records, two discharge measurements, and records for nearby stations, and are fair. Some regulation from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	48	140	130	639	1,430	1,380	333	126	244	221	18
2	56	47	150	120	524	1,020	1,500	291	118	126	160	16
3	52	46	156	150	812	855	1,120	269	108	91	135	16
4	50	44	721	257	550	788	943	244	105	77	126	20
5	48	48	798	584	470	956	800	228	93	71	103	40
6	56	65	684	1,380	560	1,200	836	216	82	71	86	42
7	67	61	583	956	477	1,090	861	205	77	64	76	36
8	56	58	490	764	416	905	684	194	73	62	97	54
9	54	63	448	624	441	855	640	205	95	80	140	40
10	50	65	538	651	619	758	634	252	124	60	152	30
11	48	60	459	662	989	645	747	198	167	51	94	24
12	47	56	409	533	706	898	770	174	102	44	74	23
13	44	69	357	426	600	1,110	701	161	82	44	70	23
14	44	144	312	411	607	794	741	151	151	132	81	24
15	45	108	280	421	1,780	880	1,720	145	112	80	65	23
16	44	91	250	376	1,470	1,020	1,530	140	84	51	54	20
17	42	84	230	330	1,000	830	1,196	134	75	44	46	16
18	40	139	210	280	850	650	1,056	126	84	40	42	15
19	39	685	190	240	950	580	1,020	115	80	38	40	14
20	42	827	180	220	2,810	520	818	112	75	35	42	14
21	54	480	170	210	2,600	507	729	396	73	33	44	14
22	58	366	160	200	1,740	461	645	560	64	30	42	14
23	50	308	160	190	1,310	431	565	421	253	29	40	12
24	48	270	150	180	1,000	451	502	319	146	29	34	11
25	60	228	150	180	820	618	456	252	98	28	32	11
26	56	190	140	170	805	861	431	209	80	28	26	14
27	54	160	140	160	924	1,280	487	199	69	42	24	88
28	60	140	140	160	1,040	1,200	406	248	62	44	21	102
29	58	140	130	150		950	362	244	68	552	20	60
30	54	140	130	600		1,250	338	170	253	1,290	20	195
31	50		130	841		1,720		142		364	19	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	1,584	67	39	51.1	0.219	0.25
November.....	5,229	827	44	174	.747	.83
December.....	9,185	798	130	296	1.27	1.46
Calendar year 1938						
January.....	12,556	1,380	120	405	1.74	2.01
February.....	27,509	2,810	416	982	4.21	4.38
March.....	27,513	1,720	431	888	3.81	4.39
April.....	24,618	1,720	338	821	3.52	3.93
May.....	7,053	560	112	228	.979	1.13
June.....	3,179	253	62	106	.455	.51
July.....	3,974	1,290	28	128	.549	.63
August.....	2,226	221	19	71.8	.308	.36
September.....	1,029	195	11	34.3	.147	.16
Water year 1938-39	125,655	2,810	11	344	1.48	20.04

Tionesta Creek at Nebraska, Pa.

Location.— Staff gage, lat. 41°28'25", long. 79°23'05", 500 feet below highway bridge at Nebraska, Forest County, and a third of a mile below mouth of Coon Creek. Zero of gage is 1,079.00 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.— 481 square miles.

Records available.— October 1931 to September 1939 in reports of U. S. Geological Survey; October 1909 to September 1911 in report of Flood Commission of Pittsburgh, 1911, August 1923 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 14 years (1925-39), 840 second-feet.

Extremes.— Maximum discharge during year, 6,260 second-feet Feb. 20 (gage height, 6.2 feet, from graph based on gage readings); minimum, 27 second-feet Sept. 2-4, 22-26 (gage height, 0.22 foot).

1909-11, 1923-39: Maximum discharge, 21,900 second-feet Mar. 4, 1934 (gage height, 11.4 feet, from graph based on gage readings), from rating curve extended above 15,500 second-feet; minimum, 25 second-feet Sept. 7-10, 25, 1927.

Remarks.— Records good except those for periods of ice effect, Nov. 24 to Dec. 2, Dec. 14 to Jan. 4, Jan. 14-30, Feb. 4-7, 13, 14, 17, 18, 23-25, Mar. 17-22, which were determined from gage heights, weather records, one discharge measurement, and by comparison with records for stations in adjacent drainage areas, and are fair. Gage read twice daily.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	87	280	190	1,530	3,090	2,540	592	206	312	360	31
2	95	87	300	200	1,260	2,130	2,710	510	195	233	225	27
3	87	82	327	250	2,020	1,720	2,130	485	191	143	180	27
4	82	77	1,280	410	1,400	1,530	1,720	435	195	115	166	36
5	82	90	1,620	1,100	980	1,820	1,440	410	170	104	146	67
6	93	115	1,260	2,320	1,100	2,240	1,440	385	143	99	115	62
7	121	118	1,130	1,820	960	2,020	1,720	360	130	96	101	67
8	109	115	905	1,440	870	1,620	1,350	336	136	101	99	72
9	95	127	800	1,130	975	1,620	1,170	360	130	113	162	72
10	87	134	975	1,090	1,170	1,350	1,170	460	187	104	225	60
11	82	124	835	1,170	2,350	1,170	1,260	385	267	85	143	46
12	82	115	740	940	1,440	1,530	1,440	312	210	72	104	42
13	77	124	650	800	1,200	2,240	1,260	290	159	70	90	44
14	82	217	530	680	1,100	1,530	1,350	290	198	136	96	44
15	84	225	430	600	3,260	1,720	3,050	263	217	184	96	44
16	82	177	390	530	2,960	1,920	2,960	254	152	99	77	40
17	77	156	360	480	1,800	1,400	2,240	250	130	77	67	46
18	74	218	340	450	1,600	1,100	2,020	233	115	65	72	40
19	74	1,040	320	390	1,850	1,000	1,920	214	140	62	65	34
20	77	1,530	300	360	4,700	900	1,530	206	130	58	60	34
21	95	905	290	340	4,770	820	1,260	367	124	53	58	31
22	107	680	280	320	3,220	760	1,130	710	110	49	65	29
23	98	563	270	310	1,900	740	1,010	680	144	46	58	27
24	98	450	260	300	1,400	740	870	510	272	44	56	27
25	104	370	250	290	1,200	870	800	410	159	44	49	27
26	109	310	250	280	1,440	1,170	740	360	127	42	44	31
27	107	290	240	260	1,920	1,820	800	290	110	75	42	141
28	109	260	220	250	1,920	2,020	710	336	96	58	40	216
29	109	260	210	600	1,620	620	336	93	314	56	149	149
30	98	270	200	1,400	1,900	592	267	198	1,610	54	417	417
31	93		190	2,470	3,360		233		651	31		
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches		
October.....				2,870	121	74	92.6	0.193		0.22		
November.....				9,316	1,530	77	311	.647		.72		
December.....				16,432	1,620	190	530	1.10		1.27		
Calendar year 1938.....				262,558	8,030	53	719	1.49		20.30		
January.....				23,150	2,470	190	747	1.55		1.79		
February.....				52,285	4,770	870	1,867	3.88		4.04		
March.....				49,470	3,360	740	1,596	3.32		3.83		
April.....				44,952	3,050	592	1,498	3.11		3.47		
May.....				11,529	710	206	372	.773		.89		
June.....				4,834	272	93	161	.335		.37		
July.....				5,312	1,610	42	171	.358		.41		
August.....				3,162	360	31	102	.212		.24		
September.....				2,030	417	27	67.7	.141		.16		
Water year 1938-39				225,342	4,770	27	617	1.28		17.41		

Oil Creek at Rouseville, Pa.

Location.— Chain gage, lat. 41°28'55", long. 79°41'40", at highway bridge 400 feet above mouth of Cherrytree Run, 1 mile above Rouseville, Venango County, and 1½ miles above former site. Zero of gage is 1,028.33 feet above mean sea level (preliminary levels of 1925).

Drainage area.— 300 square miles.

Records available.— June 1932 to September 1939.

Extremes.— Maximum discharge during year, 7,370 second-feet Feb. 20 (gage height, 8.3 feet, from graph based on gage readings); minimum, 34 second-feet Sept. 24 (gage height, 1.94 feet).

1932-39: Maximum discharge observed, 11,300 second-feet Jan. 25, 1937 (gage height, 9.85 feet); minimum, 22 second-feet July 29, Sept. 5, 7, 1934 (gage height, 1.76 feet).

Remarks.— Records good except those for periods of ice effect, Nov. 26 to Dec. 2, Dec. 15 to Jan. 3, Jan. 15-28, Feb. 4-7, 13, 23-25, which were computed on basis of gage heights, weather records, and records for nearby stations, and are fair. Gage read twice daily. Records include discharge of Cherrytree Run. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	128	240	110	1,060	3,480	1,280	320	88	254	194	39
2	131	188	250	110	830	1,520	1,240	290	88	142	142	42
3	122	113	278	140	1,370	980	865	262	94	102	131	39
4	113	109	1,590	516	800	902	694	247	290	92	157	50
5	111	131	1,300	1,450	500	1,140	572	229	194	88	138	84
6	126	178	902	3,330	570	1,470	694	210	138	90	102	67
7	140	147	794	1,560	530	1,060	940	194	111	78	90	56
8	126	145	601	902	488	694	694	180	109	148	82	65
9	117	229	516	632	662	830	632	216	106	197	102	63
10	109	240	601	632	1,030	830	694	320	111	119	119	53
11	106	203	488	865	2,810	662	1,390	236	111	92	90	50
12	102	186	436	572	1,190	1,600	1,600	188	94	82	74	50
13	100	309	387	436	750	3,370	1,020	172	94	78	74	60
14	104	694	320	364	980	1,480	1,280	157	109	297	86	55
15	104	387	260	320	2,670	1,280	3,870	132	96	165	78	50
16	98	298	210	310	1,790	1,370	3,100	150	94	111	69	47
17	94	247	190	290	980	940	1,280	150	90	86	63	45
18	92	478	170	270	830	694	1,140	140	102	80	58	41
19	90	2,350	160	250	1,300	516	1,280	126	98	76	67	39
20	92	1,880	160	240	5,840	572	1,020	133	92	71	65	39
21	111	865	150	230	4,080	488	830	140	98	65	63	41
22	113	601	150	220	1,370	516	694	169	82	60	96	39
23	104	462	140	220	870	462	601	145	380	56	74	36
24	113	412	140	210	690	488	542	126	197	56	63	35
25	126	320	140	210	600	572	462	113	124	53	56	35
26	126	280	130	200	694	662	436	104	98	53	50	39
27	145	260	130	190	1,140	1,100	462	100	86	56	47	114
28	247	240	130	190	1,820	1,060	412	109	82	67	47	138
29	188	230	120	412	694	694	364	115	78	142	44	90
30	169	230	120	873	1,180	341	109	362	747	44	128	128
31	135		120	1,650	2,540		96		387	42		
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				3,784	247	90	122	0.407	0.47			
November.....				12,448	2,350	109	415	1.39	1.55			
December.....				11,323	1,590	120	365	1.22	1.41			
Calendar year 1938				180,512	4,780	74	495	1.65	22.39			
January.....				17,904	3,330	110	578	1.93	2.22			
February.....				38,244	5,840	488	1,366	4.55	4.74			
March.....				35,162	3,480	462	1,134	3.78	4.36			
April.....				30,329	3,870	341	1,011	3.37	3.78			
May.....				5,598	320	96	174	.680	.67			
June.....				3,896	380	78	130	.433	.48			
July.....				4,190	747	53	135	.450	.52			
August.....				2,607	194	42	84.1	.280	.32			
September.....				1,729	138	35	57.6	.192	.21			
Water year 1938-39				167,004	5,840	35	468	1.53	20.71			

French Creek at Carters Corners, Pa.

Location.- Chain gage, lat. 41°57'20", long. 79°52'40", at highway bridge at Carters Corners, Erie County, 4 miles northwest of Union City and 5 miles above mouth of South Branch of French Creek. Zero of gage is 1,235.7 feet above mean sea level.

Drainage area.- 208 square miles.

Records available.- October 1919 to September 1920; October 1932 to September 1939 in reports of U. S. Geological Survey; May 1910 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 23 years (1910-16, 1919-29, 1932-39), 410 second-feet.

Extremes.- Maximum discharge during year, 8,980 second-feet Feb. 20 (gage height, 10.9 feet, from graph based on gage readings); minimum, 13 second-feet Sept. 1 (gage height, 0.68 foot).

1910-39: Maximum discharge, 11,700 second-feet Mar. 25, 1913, from rating curve extended above 7,000 second-feet; maximum gage height, about 15.2 feet Mar. 12, 1920 (backwater from ice); minimum discharge not determined.

Remarks.- Records fair except those for periods of ice effect, Nov. 26-29, Dec. 16 to Jan. 3, Jan. 15-30, Feb. 18-18, Mar. 19, 20, 23-25, which were computed on basis of gage heights, weather records, and records for stations downstream, and are poor. Discharge for Oct. 1 computed on basis of records for nearby stations. Gage read twice daily. Some regulation at low stages.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	150	119	264	75	640	2,590	1,060	174	48	43	138	14
2	135	108	249	85	665	1,410	852	153	43	42	78	17
3	117	102	220	300	880	1,060	531	144	46	31	72	19
4	119	94	902	452	880	750	422	130	119	28	65	40
5	115	110	1,050	1,100	665	1,060	363	116	100	37	57	163
6	188	121	770	3,180	665	1,350	402	110	78	36	53	88
7	132	117	1,170	1,690	665	904	852	102	62	36	46	87
8	123	144	452	880	615	675	852	100	52	82	35	65
9	117	298	370	590	715	650	508	85	55	80	49	42
10	106	298	542	565	935	554	443	100	51	39	43	41
11	96	232	452	615	2,380	443	800	94	57	36	39	34
12	100	196	350	430	2,020	1,150	675	83	51	28	39	34
13	102	356	280	246	1,500	1,800	508	74	54	33	30	37
14	115	615	220	229	825	1,060	800	70	49	104	30	28
15	115	280	196	210	955	956	2,420	78	52	74	29	24
16	100	229	170	200	720	750	1,620	65	53	60	22	22
17	117	249	180	190	580	508	852	62	55	45	21	20
18	82	315	150	180	510	402	800	60	53	34	25	18
19	78	2,050	130	170	681	330	904	59	45	25	17	18
20	82	1,290	120	170	6,470	300	800	57	49	20	24	22
21	102	770	110	170	3,580	308	700	64	47	27	23	19
22	110	430	110	160	1,130	406	531	94	43	36	22	18
23	113	332	100	160	700	550	363	94	83	33	28	15
24	121	280	100	160	531	700	291	72	45	19	25	15
25	168	243	95	150	443	900	252	62	45	15	28	19
26	176	220	90	140	464	1,060	233	59	37	18	24	29
27	190	200	90	130	852	1,800	242	51	41	33	27	37
28	209	190	85	140	1,710	1,340	227	64	36	18	18	34
29	166	180	80	210		700	184	72	42	60	17	30
30	137	264	80	350		826	179	55	46	335	18	36
31	126		75	665		1,660		51		291	15	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					3,907	209	78	126	0.606		0.70	
November.....					10,432	2,050	94	348	1.67		1.86	
December.....					9,252	1,170	75	298	1.43		1.65	
Calendar year 1938					163,016	5,260	18	447	2.15		29.12	
January.....					13,992	3,180	75	451	2.17		2.50	
February.....					33,356	6,470	443	1,191	5.73		5.97	
March.....					28,952	2,590	300	934	4.49		5.18	
April.....					19,666	2,420	179	656	3.15		3.51	
May.....					2,654	174	51	85.6	.412		.47	
June.....					1,637	119	36	54.6	.262		.29	
July.....					1,798	335	15	58.0	.279		.32	
August.....					1,157	138	15	37.3	.179		.21	
September.....					1,085	163	14	36.2	.174		.19	
Water year 1938-39					127,888	6,470	14	350	1.68		22.85	

French Creek at Venango, Pa.

Location.- Wire-weight gage, lat. 41°46'35", long. 80°06'30", at highway bridge at Venango, Crawford County, 1.5 miles above mouth of Gravel Run and 2.0 miles below mouth of Boles Run. Zero of gage is 1,117.18 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 597 square miles.

Records available.- December 1938 to September 1939.

Extremes.- Maximum discharge during period, 12,500 second-feet Feb. 21 (gage height, 11.70 feet); minimum, 49 second-feet Sept. 2, 3 (gage height, 1.11 feet).

Remarks.- Records good except those for periods of ice effect, Dec. 16 to Jan. 2, Jan. 15-29, Mar. 20, which were computed on basis of gage heights, weather records, and records for stations at Carters Corners, Saegerstown, and Utica, and are fair. Gage read twice daily. Slight regulation at low stages from operation of small mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1				250	1,410	6,330	3,520	535	152	218	420	50			
2				280	1,250	6,030	2,580	510	145	156	260	50			
3				585	1,580	3,280	1,850	465	160	135	203	50			
4				860	1,580	2,150	1,330	420	432	115	260	55			
5				2,200	1,170	2,250	1,030	398	465	108	230	112			
6				4,860	1,100	3,040	1,030	375	260	105	173	218			
7				5,580	1,030	2,690	1,490	355	200	105	143	173			
8				3,520	1,100	1,670	1,330	315	184	315	117	160			
9				1,950	1,250	1,670	1,100	315	158	465	115	143			
10				1,410	2,240	1,670	1,170	398	160	230	106	119			
11				1,580	4,300	1,330	1,950	355	154	160	105	108			
12				1,250	3,520	2,330	2,360	295	145	131	101	98			
13				1,100	2,690	5,430	1,760	278	141	114	94	94			
14			685	635	2,360	4,580	2,150	260	145	403	92	91			
15			535	580	3,160	2,690	4,710	230	147	375	89	82			
16			440	550	2,360	2,360	6,480	230	147	218	84	78			
17			460	520	2,050	1,760	3,910	218	147	175	78	67			
18			430	490	1,490	1,330	2,800	205	135	147	69	59			
19			410	470	2,570	1,100	3,400	200	135	127	65	57			
20			390	460	7,600	1,050	2,580	196	131	112	64	55			
21			380	450	11,800	1,030	1,950	196	131	106	67	53			
22			370	440	7,600	1,030	1,490	245	194	91	70	52			
23			360	430	3,070	1,030	1,250	245	622	81	78	50			
24			350	420	1,670	1,330	1,030	218	442	78	69	50			
25			340	400	1,490	1,670	890	196	230	75	64	50			
26			330	380	1,410	1,950	770	187	173	81	64	53			
27			310	360	2,150	2,250	740	169	147	135	57	70			
28			300	400	3,430	3,400	710	173	127	123	56	139			
29			290	600	2,050	610	187	127	114	114	53	143			
30			270	660	2,050	560	178	431	424	52	123	123			
31			260	1,250	4,300		173		740	51					
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....															
November.....															
December.. 14-31				6,910		685		260		384		0.643		0.43	
Calendar year 1938															
January.....				34,920		5,580		250		1,126		1.89		2.18	
February.....				78,830		11,800		1,030		2,815		4.72		4.92	
March.....				76,830		6,330		1,030		2,478		4.15		4.78	
April.....				58,530		6,480		560		1,951		3.27		3.65	
May.....				8,700		535		169		281		.471		.54	
June.....				6,367		622		127		212		.355		.40	
July.....				5,962		740		75		192		.322		.37	
August.....				3,548		420		51		114		.191		.22	
September.....				2,692		218		50		89.7		.150		.17	
Water year 1938-39															

French Creek at Saegerstown, Pa.

Location.- Chain gage, lat. 41°42'50", long. 80°08'50", at highway bridge at Saegerstown, Crawford County, half a mile above mouth of Woodcock Creek. Zero of gage is 1,093.74 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.- 629 square miles.

Records available.- April to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; April 1921 to September 1939 in reports of Pennsylvania Department of Forests and Waters (discontinued).

Average discharge.- 18 years, 1,050 second-feet.

Extremes.- Maximum discharge during year, 12,600 second-feet Feb. 21 (gage height, 12.4 feet, from graph based on gage readings); minimum, 48 second-feet Sept. 1 (gage height, 2.31 feet).

1921-39: Maximum discharge, 20,800 second-feet Jan. 20, 1929 (gage height, 15.9 feet, from graph based on gage readings), from rating curve extended above 14,000 second-feet; minimum, 22 second-feet Oct. 18, 1934 (gage height, 2.10 feet).

Maximum stage known, about 17.9 feet, from floodmark, Mar. 26, 1913 (discharge, 26,300 second-feet, from rating curve extended above 14,000 second-feet).

Remarks.- Records good except those for periods of ice effect, Nov. 27-29, Dec. 20 to Jan. 2, Jan. 16-28, which were computed on basis of gage heights, weather records, and records for stations at Carters Corners and Utica, and are fair. Gage read twice daily. Regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	463	260	778	260	1,530	6,500	3,770	552	188	265	492	53			
2	378	270	778	350	1,370	6,200	2,860	522	163	188	284	53			
3	351	250	744	646	1,880	3,890	2,060	492	188	145	204	55			
4	325	236	2,370	990	1,700	2,350	1,450	434	548	127	265	55			
5	294	232	3,300	2,500	1,290	2,350	1,140	406	522	121	241	74			
6	284	279	2,250	5,330	1,140	3,080	1,140	378	325	115	184	227			
7	299	294	1,970	5,900	1,140	2,860	1,610	378	227	112	138	175			
8	325	284	1,610	4,010	1,060	1,700	1,370	351	184	427	118	145			
9	284	440	1,290	2,060	1,370	1,790	1,220	325	171	552	112	145			
10	255	614	1,370	1,530	2,980	1,790	1,290	378	167	274	115	124			
11	250	552	1,370	1,790	4,650	1,450	2,550	378	167	175	112	112			
12	236	463	1,140	1,370	3,770	2,890	2,650	325	152	138	105	102			
13	236	463	918	1,060	2,650	5,470	1,970	289	138	135	93	96			
14	260	1,280	744	678	2,650	4,650	2,350	274	152	552	91	96			
15	279	1,290	522	614	3,410	2,860	5,730	265	171	406	93	85			
16	260	883	463	560	2,650	2,550	6,650	236	167	245	85	82			
17	241	678	492	530	1,970	1,970	4,260	236	152	184	80	77			
18	227	646	463	500	1,700	1,450	3,190	236	134	149	74	69			
19	204	2,370	434	480	3,340	1,220	3,650	227	134	124	67	67			
20	200	3,590	420	470	3,460	1,140	2,860	213	124	105	67	67			
21	218	2,550	400	460	12,400	1,060	2,250	213	131	102	72	62			
22	260	1,530	380	450	8,580	1,060	1,610	270	168	93	74	60			
23	236	1,060	370	440	3,420	1,060	1,370	279	696	85	82	58			
24	227	883	360	430	1,880	1,290	1,140	265	522	77	80	55			
25	284	744	350	420	1,610	1,700	918	236	274	72	74	55			
26	325	678	340	390	1,450	1,970	847	222	200	82	67	60			
27	351	620	350	370	2,150	2,650	812	204	159	121	72	69			
28	434	570	310	440	4,180	3,530	778	204	131	149	62	115			
29	492	540	300	552	2,350	646	209	135	105	58	58	141			
30	406	744	280	847	2,550	583	209	508	390	58	58	127			
31	325		270	1,370		4,390		204		847	58				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				9,209		492		200		297		0.472		0.54	
November.....				25,293		3,590		232		843		1.34		1.50	
December.....				27,116		3,300		270		875		1.39		1.60	
Calendar year 1938				434,854		10,600		88		1,191		1.89		25.71	
January.....				37,777		5,900		260		1,219		1.94		2.24	
February.....				86,380		12,400		1,060		3,085		4.90		5.10	
March.....				81,770		6,500		1,060		2,638		4.19		4.83	
April.....				64,724		6,650		583		2,157		3.43		3.83	
May.....				9,400		552		204		303		.482		.56	
June.....				7,098		696		124		237		.377		.42	
July.....				6,662		847		72		215		.342		.39	
August.....				3,777		492		58		122		.194		.22	
September.....				2,761		227		53		92.0		.146		.16	
Water year 1938-39				361,967		12,400		53		992		1.68		21.39	

French Creek at Utica, Pa.

Location.- Water-stage recorder, lat. 41°26'15", long. 79°57'20", at highway bridge at Utica, Venango County, a third of a mile above Mill Creek. Zero of gage is 1,019.54 feet above mean sea level (general adjustment of 1907).

Drainage area.- 1,028 square miles.

Records available.- August 1932 to September 1939.

Extremes.- Maximum discharge during year, 12,700 second-feet Feb. 22 (gage height, 9.58 feet); minimum, 76 second-feet Sept. 3 (gage height, 1.22 feet).

1932-39: Maximum discharge, 19,200 second-feet Mar. 27, 1936 (gage height, 11.57 feet), from rating curve extended above 14,000 second-feet; minimum, 43 second-feet July 30, 1934 (gage height, 1.03 feet).

Maximum stage known, about 15.7 feet during flood of March 1913 (discharge, 35,600 second-feet, from rating curve extended above 14,000 second-feet).

Remarks.- Records good except those for periods of ice effect, Nov. 27-29, Dec. 21 to Jan. 3, Jan. 16-28, Feb. 16-18, which were computed on basis of gage heights, weather records, and records for stations upstream, and are fair.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	601	405	1,150	400	2,810	7,950	5,550	988	260	716	1,090	82
2	517	373	1,160	400	2,840	8,450	4,840	920	242	626	616	82
3	454	346	1,220	800	3,600	7,100	3,760	831	253	508	412	78
4	410	325	2,540	1,340	3,460	4,670	2,840	762	504	328	412	98
5	382	333	3,820	2,930	2,950	3,760	2,060	710	920	249	426	112
6	373	338	3,520	5,320	2,480	4,080	2,000	662	718	223	344	109
7	368	373	2,970	6,300	2,350	4,160	2,350	614	466	206	272	240
8	386	405	2,590	6,500	2,230	3,160	2,290	568	367	226	223	216
9	382	459	2,080	4,060	2,600	2,600	2,000	568	332	925	216	184
10	350	656	1,970	2,600	3,860	2,670	2,000	638	308	715	210	173
11	329	714	2,020	2,410	6,700	2,350	3,130	650	292	411	200	156
12	317	638	1,770	2,290	6,110	3,460	4,080	574	268	280	181	143
13	304	613	1,480	1,740	5,010	6,700	3,600	513	249	220	176	145
14	321	982	1,250	1,290	4,240	7,100	3,600	475	253	672	181	133
15	338	1,620	943	1,020	4,500	5,550	5,940	450	249	942	176	128
16	350	1,260	760	930	3,700	4,080	7,700	426	253	676	164	121
17	333	966	818	850	3,200	3,380	7,500	403	242	432	145	126
18	308	936	734	780	2,800	2,480	5,730	380	227	320	135	108
19	292	2,230	668	740	3,700	1,950	5,550	358	223	264	124	95
20	277	3,900	632	710	8,400	1,840	5,010	349	220	220	121	89
21	281	3,650	590	680	11,000	1,680	4,000	362	216	190	114	89
22	300	2,590	560	660	12,400	1,580	3,160	372	210	167	119	87
23	333	1,920	540	650	8,980	1,580	2,480	408	688	153	117	83
24	346	1,400	520	640	5,630	1,630	2,060	398	1,140	140	124	82
25	346	1,160	510	620	3,460	2,060	1,740	354	845	130	119	78
26	401	1,040	500	580	2,810	2,410	1,480	316	607	128	110	82
27	449	950	480	550	3,160	3,090	1,340	292	380	128	104	129
28	485	900	460	670	5,060	4,080	1,240	276	272	167	99	158
29	595	880	440	824	3,760	1,140	272	223	230	91	176	
30	572	1,110	420	1,710	3,260	1,050	276	415	317	87	220	
31	475		410	2,950	5,190			276		1,300	83	
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....				11,975		601	277	386	0.375		0.43	
November.....				33,472		3,900	325	1,116	1.09		1.22	
December.....				39,505		3,820	410	1,274	1.24		1.43	
Calendar year 1938				605,903		12,700	104	1,660	1.61		21.93	
January.....				53,944		6,500	400	1,740	1.69		1.95	
February.....				130,030		12,400	2,230	4,644	4.52		4.71	
March.....				117,810		8,450	1,580	3,800	3.70		4.27	
April.....				101,220		7,700	1,050	3,374	3.28		3.66	
May.....				15,441		988	272	498	.484		.56	
June.....				11,842		1,140	210	395	.384		.43	
July.....				12,209		1,300	128	394	.383		.44	
August.....				6,991		1,090	83	224	.218		.25	
September.....				3,802		240	78	127	.124		.14	
Water year 1938-39				538,241		12,400	78	1,475	1.43		19.49	

Sugar Creek at Sugarcreek, Pa.

Location.- Chain gage, lat. 41°25'45", long. 79°52'45", at highway bridge three-quarters of a mile north of Sugarcreek, Venango County, three-quarters of a mile above mouth, and 3 miles northwest of Franklin. Zero of gage is 1,016.03 feet above mean sea level (general adjustment of 1912).

Drainage area.- 166 square miles.

Records available.- August 1932 to September 1939.

Extremes.- Maximum discharge during year, 3,570 second-feet Feb. 20 (gage height, 6.2 feet, from graph based on gage readings); minimum, 16 second-feet Sept. 24 (gage height, 1.08 feet); minimum daily discharge, 20 second-feet Sept. 24.

1932-39: Maximum discharge, 8,690 second-feet Jan. 25, 1937 (gage height, 8.5 feet, from graph based on gage readings); minimum, 9.2 second-feet Oct. 22, 1935; minimum daily discharge, 10 second-feet Oct. 14, 1934.

Remarks.- Records fair. Discharge for periods of ice effect, Nov. 25 to Dec. 1, Dec. 16 to Jan. 2, Jan. 16-28, Feb. 5-7, 13, 14, 16, 17, 23-26, Mar. 17-18, computed on basis of gage heights, weather records, and records for nearby stations. Gage read twice daily. Some regulation at low stages from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	53	150	82	731	1,280	835	194	59	66	170	26
2	64	50	157	84	616	900	588	170	59	44	146	26
3	63	52	195	125	990	638	435	161	118	44	124	26
4	63	52	1,050	238	644	564	396	148	182	42	97	26
5	63	59	620	758	390	564	359	140	105	50	79	44
6	68	68	466	1,290	420	564	324	134	71	46	64	39
7	65	61	444	672	400	476	416	128	66	44	58	32
8	63	59	362	538	362	456	435	124	69	46	53	34
9	60	103	276	362	420	416	416	126	66	76	66	29
10	55	89	262	343	1,260	378	378	140	64	54	56	33
11	55	92	247	326	1,290	342	435	144	62	59	46	26
12	53	80	198	292	856	1,660	663	128	62	56	44	23
13	53	136	188	221	530	1,400	621	112	61	45	42	32
14	63	221	175	254	510	776	649	108	66	324	45	27
15	61	149	155	198	1,060	638	1,960	101	58	108	39	26
16	60	112	140	170	640	564	1,010	101	58	72	34	25
17	50	105	120	160	500	410	690	108	56	72	32	29
18	59	319	110	140	466	340	900	94	53	66	32	29
19	56	1,100	110	130	1,000	308	663	85	56	59	38	32
20	55	563	100	130	2,280	291	564	86	56	61	34	22
21	60	362	98	120	1,200	276	476	86	51	44	34	29
22	60	276	94	120	835	261	396	128	50	40	44	27
23	55	247	92	120	600	247	342	101	72	44	36	27
24	58	198	90	110	490	233	308	86	61	44	32	20
25	59	160	88	110	440	233	276	79	53	38	30	26
26	58	150	86	110	500	261	261	76	46	36	29	29
27	60	140	84	100	612	564	247	71	44	38	29	62
28	73	130	84	96	1,080	498	220	78	40	38	29	50
29	65	130	84	140		378	233	71	40	31.5	26	38
30	58	140	82	1,120		791	233	76	50	452	26	62
31	56		82	1,430		1,060		64		233	29	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				1,859	73	53	60.0	0.361	0.42			
November.....				5,456	1,100	50	182	1.10	1.23			
December.....				6,489	1,050	82	209	1.26	1.45			
Calendar year 1938				96,823	3,230	41	265	1.60	21.71			
January.....				10,069	1,430	82	325	1.96	2.26			
February.....				21,122	2,280	362	754	4.54	4.73			
March.....				17,787	1,660	233	574	3.46	3.99			
April.....				15,729	1,960	220	524	3.16	3.53			
May.....				3,448	194	64	111	.669	.77			
June.....				1,954	182	40	65.1	.392	.44			
July.....				2,746	452	38	88.6	.634	.62			
August.....				1,643	170	26	53	.319	.37			
September.....				956	62	20	31.9	.192	.21			
Water year 1938-39				89,258	2,280	20	245	1.48	20.02			

Clarion River at Cooksburg, Pa.

Location.- Water-stage recorder, lat. 41°19'50", long. 79°18'35", at highway bridge at Cooksburg, Forest County, 300 feet below mouth of Toms Run and 5 miles above mouth of Panther Run. Prior to May 16, 1939, chain gage at same site and datum. Zero of gage is 1,146.48 feet above mean sea level (general adjustment of 1912).

Drainage area.- 807 square miles.

Records available.- November 1938 to September 1939.

Extremes.- Maximum discharge during period, 8,320 second-feet Feb. 21 (gage height, 8.8 feet, from graph based on gage readings); minimum, 41 second-feet Aug. 30 (gage height, 1.22 feet).

Maximum stage known, about 19 feet, from floodmarks, Mar. 17, 1936 (discharge not determined).

Remarks.- Records fair prior to May 16 and good thereafter. Discharge for periods of ice effect, Nov. 25 to Dec. 2, Dec. 15 to Jan. 4, Jan. 12-21, 24-28, Feb. 5, 6, 23-26, Mar. 7-11, computed on basis of gage heights, weather records, and records for nearby stations. Discharge for periods of erroneous gage heights, Feb. 15, Mar. 13, 14, computed on basis of high-water marks, engineer's gage readings, and records for nearby stations. Gage read twice daily prior to May 16. Slight regulation from industrial plants upstream. Gage-height records and discharge measurements prior to Feb. 14 furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			470	250	3,010	5,200	4,320	921	423	304	527	50
2			460	250	2,530	5,440	5,280	882	382	286	290	50
3			607	300	3,800	4,170	4,020	736	370	217	208	50
4			1,120	450	3,570	3,420	3,280	669	349	170	544	54
5			1,460	1,040	2,600	2,880	2,640	638	318	144	472	70
6			1,640	2,210	2,100	3,280	2,530	607	283	141	290	63
7			1,640	2,840	2,310	2,600	3,570	578	255	147	196	98
8			1,460	2,010	2,010	2,200	3,280	524	242	158	155	104
9			1,120	1,730	2,010	1,900	2,760	524	252	205	139	98
10			1,120	1,640	2,010	1,800	2,760	524	279	211	147	98
11			1,200	1,380	3,870	1,900	2,530	497	297	170	188	81
12			1,200	1,100	2,760	2,530	2,010	497	290	130	176	72
13			1,080	940	2,530	3,460	1,910	448	262	125	139	63
14			921	760	3,420	2,880	1,910	426	297	176	128	63
15			760	700	4,250	2,760	3,140	403	395	256	120	70
16		252	640	800	4,960	2,760	3,570	342	293	224	114	67
17		242	560	900	4,020	3,010	3,140	382	233	147	106	76
18		249	500	740	3,140	2,630	2,880	370	205	114	101	63
19		1,720	440	620	3,110	2,210	3,010	345	196	104	98	54
20		2,900	380	520	5,600	1,910	2,640	330	217	104	119	50
21		1,490	350	560	7,200	1,820	2,210	857	223	96	128	60
22		1,080	330	607	4,960	1,820	1,910	1,690	223	88	94	70
23		921	310	426	3,000	1,730	1,820	1,830	202	84	86	58
24		772	300	390	2,400	1,640	1,550	1,380	239	76	86	58
25		600	280	350	2,000	1,460	1,380	1,080	279	67	81	54
26		500	280	330	2,300	1,380	1,290	870	205	58	70	56
27		420	300	310	2,880	1,910	1,290	729	173	72	67	154
28		390	280	310	3,180	3,010	1,200	638	150	81	63	505
29		370	270	1,200	2,760	2,760	1,200	618	141	130	58	450
30		430	260	2,020	2,530	2,530	960	572	147	198	43	409
31			260	4,400	3,870	3,870		501		700	43	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches		
October.....				12,336	2,900	242	822	1.09		0.61		
November.....				21,998	1,640	260	710	.880		1.01		
December.....												
Calendar year 1938												
January.....				31,883	4,400	250	1,028	1.27		1.46		
February.....				91,530	7,200	2,000	3,269	4.05		4.22		
March.....				82,770	5,440	1,380	2,870	3.31		3.82		
April.....				75,990	5,280	960	2,533	3.14		3.50		
May.....				21,406	1,830	330	691	.856		.99		
June.....				7,820	425	141	261	.323		.36		
July.....				5,183	700	58	167	.207		.24		
August.....				5,076	544	43	164	.203		.23		
September.....				3,266	505	50	109	.135		.15		
Water year 1938-39				359,260	7,200	43	1,126	1.40		16.59		

Clarion River near Piney, Pa.

Location.- Lat. 41°11'30", long. 79°26'00", at hydroelectric plant of Clarion River Power Co., 2½ miles upstream from Piney, Clarion County, and 3 miles southwest of Clarion.

Drainage area.- 951 square miles.

Records available.- October 1933 to September 1939 in reports of U. S. Geological Survey; October 1924 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 15 years, 1,544 second-feet.

Remarks.- Discharge computed from power-house data furnished by Clarion River Power Co. Last three columns of monthly table adjusted for storage.

Revision of discharge for water year 1937-38
Revised figures supersede those published in the 1938 report. Revised daily discharge for Feb. 10, 1938, is 7,110 second-feet. Revised discharge, in second-feet, for February and July 1938 and water year 1937-38 is given in the following table:

Month	Observed			Gain or loss in Storage (Mean)	Adjusted for storage		
	Maximum	Minimum	Mean		Mean	Per Square mile	Run-off in inches
February.....	7,860	1,620	4,427	-11	4,416	4.64	4.83
July.....	3,220	286	957	+10	967	1.02	1.18
Water year 1937-38....	13,800	59	1,795	+1	1,796	1.89	25.63

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	278	257	835	464	3,330	4,560	4,360	1,460	473	82	63	111
2	107	149	662	443	3,180	3,970	4,710	1,520	396	61	351	97
3	205	263	441	334	4,270	3,870	4,220	892	252	62	140	102
4	159	343	1,370	462	4,040	3,090	3,770	639	226	62	781	61
5	73	294	2,310	1,480	2,380	3,340	3,220	613	252	200	903	86
6	169	435	1,900	2,610	2,620	3,640	3,180	221	287	221	62	78
7	63	61	1,660	3,300	2,590	3,720	3,750	193	251	337	63	69
8	63	61	1,550	809	2,190	3,090	3,400	511	375	241	150	61
9	235	62	1,490	1,630	2,190	3,090	1,570	625	277	61	63	61
10	90	62	1,270	1,520	2,560	3,140	2,210	678	167	398	63	61
11	311	159	771	1,440	4,240	2,690	2,510	827	180	161	116	61
12	148	63	1,230	1,590	3,020	2,320	2,440	787	298	230	230	64
13	69	221	1,100	1,850	2,640	4,070	2,520	135	368	121	63	75
14	90	112	773	497	2,740	3,690	2,600	197	338	166	138	93
15	140	174	779	442	3,940	3,530	2,820	580	336	118	238	81
16	155	233	737	1,160	5,800	4,120	3,370	541	394	62	63	85
17	162	391	304	996	4,280	4,010	3,760	509	136	534	63	65
18	255	529	1,080	999	3,960	3,490	3,070	471	63	236	63	77
19	89	667	742	898	2,930	1,760	3,280	418	346	58	63	93
20	162	1,960	808	669	4,870	2,350	3,140	192	340	59	63	88
21	79	1,680	782	379	7,070	2,080	3,040	320	259	71	188	87
22	87	1,040	540	569	1,640	2,160	1,700	222	59	211	74	74
23	230	1,110	498	561	4,060	1,710	1,190	2,130	292	59	70	80
24	323	1,020	443	786	3,890	1,540	1,670	1,140	101	59	70	88
25	138	432	633	378	2,980	1,750	1,500	1,200	62	58	74	93
26	263	201	248	243	2,700	1,100	1,630	1,150	213	58	82	72
27	207	432	343	311	3,070	2,350	1,180	329	278	58	82	61
28	63	63	510	250	4,030	2,680	1,180	201	207	58	126	226
29	63	514	476	674	3,150	1,370	1,370	678	214	59	99	553
30	171	300	305	2,680	3,660	516	422	241	60	100	100	581
31	63	377	4,260	4,680			646		62	103		

Month	Observed				Storage	Adjusted for storage		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October.....	4,710	323	63	152	+ 1	153	0.161	0.19
November.....	13,288	1,960	61	443	- 1	442	.466	.62
December.....	26,967	2,310	248	870	-71	799	.840	.97
Calendar year	544,278	11,200	59	1,491	- 2	1,489	1.57	21.26
January.....	34,684	4,260	243	1,119	+25	1,144	1.20	1.38
February.....	100,610	7,070	2,190	3,593	-15	3,578	3.76	3.92
March.....	93,880	4,680	1,100	3,028	+42	3,070	3.23	3.72
April.....	79,316	4,710	516	2,644	-13	2,631	2.77	3.09
May.....	21,919	2,130	135	707	+ 2	709	.746	.86
June.....	7,844	473	62	261	-22	239	.251	.28
July.....	4,144	534	58	134	+ 4	138	.145	.17
August.....	4,944	903	62	159	+ 7	166	.175	.20
September.....	3,484	581	61	116	-11	105	.110	.12
Water year	395,790	7,070	58	1,084	- 4	1,080	1.14	15.42

Redbank Creek at Mayport, Pa.

Location.- Chain gage, lat. 41°02'00", long. 79°15'05", at highway bridge at Mayport, Clarion County, 0.7 mile above mouth of Pine Creek, 1.5 miles below mouth of Little Sandy Creek, and 1½ miles northeast of Hawthorn. Zero of gage is 1,073.41 feet mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 458 square miles.

Records available.- July 1938 to September 1939.

Extremes.- Maximum discharge during period July 28 to Sept. 30, 1938, 688 second-feet Aug. 2 (gage height, 2.95 feet, from graph based on gage readings); minimum, 33 second-feet Sept. 9-11 (gage height, 1.49 feet).
Maximum discharge during water year 1938-39, 5,360 second-feet Feb. 15 (gage height, 6.8 feet, from graph based on gage readings); minimum (estimated), 17 second-feet Sept. 2, 3.

Remarks.- Records fair except those for periods of ice effect, Nov. 26 to Dec. 3, Dec. 14 to Jan. 4, Jan. 15-28, Feb. 23-25 (computed on basis of weather records, gage heights, and records for nearby stations), and those for periods of missing or erroneous gage-height record, Sept. 21, 22, 1938, July 20-26, Aug. 17-19, Aug. 26 to Sept. 28, 1939 (computed on basis of weather records and records for station at St. Charles), all of which are poor. Gage read twice daily. Gage-height record and discharge measurements prior to Sept. 11, 1939, furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											338	41
2											560	41
3											306	41
4											210	41
5											176	38
6												
7											149	38
8											400	37
9											350	37
10											322	34
11											295	33
12											256	37
13											205	45
14											153	60
15											131	73
16											117	149
17												
18											101	134
19											95	90
20											90	71
21											90	60
22											79	58
23												
24											73	52
25											68	62
26											62	76
27											58	73
28											50	68
29												
30											47	66
31											48	52
											372	45
											366	48
											311	47
											214	44

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....						
November.....						
December.....						
Calendar year						
January.....						
February.....						
March.....						
April.....						
May.....						
June.....						
July.....						
August.....		560	41	161	0.352	0.41
September.....		149	33	58.2	.127	.14
Water year 1937-38						

Redbank Creek at Mayport, Pa.

(Continued)

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	58	180	120	2,280	3,590	2,640	372	124	76	127	18
2	35	50	200	120	2,440	2,160	2,900	338	121	62	76	17
3	32	45	350	120	4,360	1,830	2,160	280	108	48	60	17
4	32	41	829	170	2,900	1,530	1,630	242	87	45	1,050	19
5	33	45	972	470	1,830	1,830	1,350	214	84	44	617	22
6	37	73	720	886	1,530	1,940	1,350	193	73	42	164	24
7	64	66	590	825	1,730	1,530	1,630	184	73	42	138	26
8	62	64	530	622	1,530	1,180	1,260	180	68	62	111	28
9	56	58	470	500	1,530	1,090	1,090	180	76	73	90	30
10	52	52	470	470	2,560	1,010	1,010	233	124	68	87	33
11	47	50	410	560	3,890	860	1,010	205	124	54	79	33
12	47	48	366	470	2,640	2,180	935	172	127	45	64	32
13	45	54	322	511	1,830	4,200	860	168	84	41	58	29
14	47	58	250	251	1,530	2,700	790	157	134	97	56	25
15	47	64	200	215	3,750	2,900	1,100	146	121	184	54	22
16	48	62	180	290	3,160	3,170	1,350	138	95	101	48	21
17	47	56	160	320	2,520	2,280	1,530	134	79	68	45	23
18	45	123	150	250	1,730	1,730	1,440	124	101	64	41	24
19	42	444	140	210	1,530	1,550	1,260	124	153	44	40	21
20	48	772	140	190	2,590	1,180	1,090	146	111	34	161	21
21	64	530	130	210	2,520	935	972	180	108	30	84	21
22	71	322	130	240	1,940	825	860	408	95	28	62	19
23	64	271	125	190	1,400	720	590	845	90	26	50	18
24	56	193	120	170	1,100	655	560	410	90	24	44	19
25	52	157	120	160	940	622	560	311	71	26	38	21
26	52	145	120	150	1,090	590	530	246	60	28	33	22
27	62	140	190	150	1,940	590	500	193	52	28	30	23
28	79	140	160	150	2,770	1,350	470	184	71	31	27	26
29	84	140	140	500		1,880	388	168	60	144	25	50
30	73	195	130	2,090		3,310	382	149	68	271	22	54
31	62		125	3,460				124		184	20	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	1,626	84	32	52.5	0.115	0.13
November.....	4,516	772	41	151	.330	.37
December.....	9,119	972	120	294	.642	.74
Calendar year 1938						
January.....	14,840	3,460	120	479	1.05	1.21
February.....	61,560	4,360	940	2,199	4.80	5.00
March.....	53,117	4,200	590	1,713	3.74	4.31
April.....	34,197	2,900	382	1,140	2.49	2.78
May.....	7,148	845	124	231	.504	.58
June.....	2,832	153	52	94.4	.206	.23
July.....	2,114	271	24	68.2	.149	.17
August.....	3,601	1,050	20	116	.253	.29
September.....	758	54	17	25.3	.055	.06
Water year 1938-39.....	195,428	4,360	17	535	1.17	15.87

Redbank Creek at St. Charles, Pa.

Location.- Chain gage, lat. 40°59'40", long. 79°23'30", at industrial railroad bridge at St. Charles, Clarion County, a quarter of a mile below mouth of Leatherwood Creek. Zero of gage is 976.24 feet above mean sea level (general adjustment of 1907).

Drainage area.- 528 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; October 1909 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 26 years (1910-14, 1915-16, 1918-39), 884 second-feet.

Extremes.- Maximum discharge during year, 7,250 second-feet Mar. 13 (gage height, 7.1 feet, from graph based on gage readings); minimum, 18 second-feet Sept. 1-4, 23 (gage height, 0.10 foot).

1909-39: Maximum discharge, 35,200 second-feet Mar. 18, 1936 (gage height, 18.60 feet, from floodmarks), from rating curve extended on basis of slope-area determination; minimum, 10 second-feet Aug. 9, 1910.

Remarks.- Records fair. Discharge for periods of ice effect, Nov. 26-29, Dec. 16-26, Dec. 28 to Jan. 4, Jan. 13-28, Feb. 23, 24, Mar. 9, 10, computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations. Gage read twice daily. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	50	77	189	125	2,960	4,420	2,960	442	153	101	178	19	
2	47	69	213	125	3,030	2,960	2,820	399	149	87	128	19	
3	41	69	454	150	5,390	2,090	2,320	339	141	64	96	18	
4	36	67	860	215	3,560	1,680	1,880	303	138	53	645	23	
5	36	75	1,190	420	2,200	1,980	1,500	286	124	52	808	25	
6	53	94	920	888	1,780	2,090	1,420	255	108	46	314	25	
7	78	82	705	920	2,320	1,680	1,980	255	97	48	189	28	
8	78	94	565	855	1,680	1,260	1,420	240	97	69	165	30	
9	75	99	515	592	1,680	1,100	1,340	255	92	112	123	33	
10	69	85	540	515	3,200	1,000	1,260	286	151	103	92	34	
11	62	85	490	620	4,610	1,050	1,260	255	159	77	94	34	
12	56	89	442	515	3,250	1,930	1,120	226	121	58	85	31	
13	53	87	358	360	2,090	6,070	985	201	123	47	75	33	
14	56	78	303	280	1,980	4,240	920	189	157	83	70	29	
15	53	94	226	240	4,080	3,720	1,340	178	167	189	58	25	
16	54	92	195	330	3,890	3,560	1,590	165	126	143	56	22	
17	53	89	175	350	2,690	2,560	1,680	167	105	92	48	24	
18	54	265	160	310	2,090	1,880	1,500	161	143	75	43	25	
19	50	628	150	240	1,590	1,260	1,420	157	178	77	42	22	
20	72	985	145	200	2,440	1,260	1,260	157	161	37	172	23	
21	85	734	140	230	2,960	1,120	1,120	178	145	33	119	22	
22	82	420	140	270	2,320	920	985	392	153	31	89	22	
23	90	321	135	200	1,500	795	855	705	130	30	64	19	
24	73	240	135	185	1,250	765	765	490	110	25	48	22	
25	65	178	130	175	1,120	705	648	378	97	29	47	22	
26	64	160	130	165	1,260	648	592	303	87	30	48	23	
27	78	150	201	160	2,150	678	565	255	75	30	37	24	
28	108	145	200	160	3,720	1,560	490	226	69	29	31	26	
29	110	145	155	422	1,420	442	201	94	40	28	36	26	
30	106	213	140	2,900	2,170	442	189	73	235	24	72		
31	94	130	130	4,520	4,240		167		286	24			
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				2,070		110		36		66.8		0.127	0.15
November.....				6,009		985		67		200		.379	.42
December.....				10,431		1,190		130		336		.636	.73
Calendar year 1938				282,603		7,140		36		774		1.47	19.90
January.....				17,577		4,520		125		567		1.07	1.23
February.....				72,790		5,390		1,120		2,600		4.92	5.12
March.....				62,611		6,070		648		2,020		3.83	4.42
April.....				38,879		2,960		442		1,300		2.46	2.74
May.....				8,400		705		157		271		.513	.59
June.....				3,723		178		69		124		.235	.26
July.....				2,409		286		25		77.7		.147	.17
August.....				4,040		808		24		130		.246	.28
September.....				812		72		18		27.1		.051	.06
Water year 1938-39				229,751		6,070		18		629		1.19	16.17

Mahoning Creek at Punxsutawney, Pa.

Location.— Water-stage recorder, lat. 40°56'25", long. 78°58'20", 500 feet above highway bridge at Punxsutawney, Jefferson County, 1 mile below mouth of Elk Run, and 1 mile above mouth of Sawmill Run. Zero of gage is 1,219.44 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.— 149 square miles.

Records available.— October 1938 to September 1939.

Extremes.— Maximum discharge during year, 2,140 second-feet Feb. 15 (gage height, 4.93 feet); minimum, 2.6 second-feet Sept. 26 (gage height, 0.50 foot); minimum daily discharge, 13 second-feet Sept. 26.

Maximum stage known, 15.6 feet, from floodmark, Mar. 18, 1936 (discharge not determined).

Remarks.— Records good except those for periods of ice effect, Nov. 24–30, Dec. 15–26, Dec. 28 to Jan. 1, Jan. 14–29 (computed on basis of gage heights, weather records, and records for nearby stations), and those for periods of missing gage heights, Oct. 1–3, May 8–14 (computed on basis of range line shown by recorder graph and records for nearby stations), all of which are fair. Regulation at low stages from operation of mine pumps three-quarters of a mile upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	16	41	29	589	1,270	912	163	72	168	46	20
2	24	16	43	37	666	862	933	144	73	122	36	19
3	23	17	41	50	1,480	598	677	136	65	92	55	21
4	22	16	155	79	979	472	511	122	62	80	74	28
5	22	19	154	107	605	511	414	122	56	74	48	33
6	29	20	117	194	465	511	452	115	54	72	39	27
7	35	19	98	150	586	414	467	108	39	62	35	24
8	27	20	83	121	468	339	366	105	51	117	35	23
9	23	20	77	101	574	333	333	110	60	94	30	22
10	20	21	78	105	1,040	285	326	130	75	54	29	25
11	22	19	70	111	1,420	258	303	115	81	49	27	24
12	21	19	62	92	874	650	274	100	72	42	27	22
13	21	24	59	71	582	1,060	247	95	58	65	28	27
14	27	36	49	64	480	838	237	90	63	197	30	23
15	23	27	45	60	1,430	1,030	399	86	55	82	25	21
16	23	23	43	64	1,060	1,050	399	80	53	63	23	22
17	19	24	40	68	727	782	487	74	52	50	22	20
18	22	26	38	65	558	550	442	71	277	45	21	20
19	20	72	36	60	531	402	428	73	163	45	25	20
20	29	125	35	57	792	366	385	92	165	35	25	19
21	29	70	34	58	669	314	333	101	117	32	26	20
22	24	55	33	62	566	280	291	449	108	32	23	19
23	22	45	32	68	428	247	258	307	128	30	24	18
24	18	44	31	60	372	221	226	208	94	30	20	15
25	20	40	30	54	296	216	207	152	75	30	24	15
26	20	39	32	50	481	207	194	129	66	26	25	13
27	20	38	53	48	756	212	184	108	56	26	21	14
28	21	37	48	46	1,150	520	167	101	196	25	22	16
29	21	36	41	46		366	160	92	132	54	22	17
30	18	35	36	587		789	161	85	269	96	21	40
31	17		32	1,080		1,100		73		92	21	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				710	35	17	22.9	0.154	0.18			
November.....				1,018	125	16	33.9	.228	.25			
December.....				1,766	155	30	57.0	.382	.44			
Calendar year 1938												
January.....				3,844	1,080	29	124	.832	.96			
February.....				20,624	1,480	296	737	4.95	5.15			
March.....				17,053	1,270	207	550	3.69	4.25			
April.....				11,173	933	160	372	2.50	2.79			
May.....				3,934	449	71	127	.852	.98			
June.....				2,887	277	39	96.2	.646	.72			
July.....				2,081	197	25	67.1	.450	.52			
August.....				929	74	20	30.0	.201	.23			
September.....				645	40	13	21.5	.144	.16			
Water year 1938-39				66,664	1,480	13	183	1.25	16.65			

Mahoning Creek near Dayton, Pa.

Location.— Chain gage, lat. 40°54'05", long. 79°13'35", at Independence Bridge, three-quarters of a mile above mouth of Foundry Run and 1 3/4 miles northeast of Dayton, Armstrong County. Zero of gage is 1,095.24 feet above mean sea level (general adjustment of 1907).

Drainage area.— 321 square miles.

Records available.— October 1920 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1916 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.— 19 years (1920–39), 560 second-feet.

Extremes.— Maximum discharge during year, 4,770 second-feet Feb. 11 (gage height, 6.3 feet, from graph based on gage readings); minimum, 16 second-feet Sept. 26 (gage height, 1.55 feet).

1916–39: Maximum discharge observed, 22,800 second-feet Mar. 18, 1936 (gage height, 14.53 feet), from rating curve extended on basis of slope-area determination; minimum, 8.0 second-feet Oct. 17, 1928 (gage height, 1.40 feet).

Remarks.— Records good except those below 50 second-feet and those for periods of ice effect, Nov. 23 to Dec. 2, Dec. 15 to Jan. 6, Jan. 12–28 (computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations), all of which are fair. Gage read twice daily. Slight regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	35	90	55	1,780	3,120	2,250	352	110	538	133	18
2	34	29	85	65	1,910	1,990	2,650	306	118	301	89	18
3	28	26	127	95	4,100	1,410	1,750	264	116	211	80	18
4	20	23	271	125	3,070	1,150	1,360	224	121	185	146	20
5	20	32	398	165	1,520	1,060	1,010	207	94	156	118	42
6	39	55	312	230	1,360	1,150	965	198	82	130	89	54
7	53	67	280	345	1,630	1,010	1,250	198	78	108	69	35
8	57	59	246	262	1,460	790	965	189	78	244	82	24
9	49	57	198	210	1,750	750	830	178	133	462	73	22
10	55	57	184	170	2,710	670	790	211	124	185	60	27
11	26	55	177	229	4,020	635	710	189	113	130	58	35
12	26	55	157	200	2,380	1,670	670	152	105	110	58	40
13	29	55	110	170	1,630	3,670	565	146	97	108	63	35
14	32	90	90	160	1,360	2,790	579	136	97	482	76	29
15	32	85	85	150	2,860	2,510	875	136	87	318	73	29
16	32	71	80	170	2,510	2,510	1,250	133	82	167	63	27
17	30	67	75	200	1,630	1,870	1,100	133	76	127	50	24
18	29	100	70	165	1,360	1,250	1,200	127	221	110	38	22
19	28	238	70	150	1,200	920	1,250	116	352	99	31	21
20	49	316	65	140	1,520	875	920	118	352	94	29	29
21	61	202	65	140	1,520	710	750	260	258	85	42	29
22	65	144	60	190	1,250	600	670	1,030	260	76	32	21
23	65	125	60	170	1,010	504	586	1,010	789	73	27	19
24	69	110	60	150	920	439	504	670	472	71	22	18
25	51	100	60	140	830	426	439	446	312	69	21	17
26	42	90	60	130	976	406	376	334	211	67	21	16
27	42	85	75	120	1,870	420	388	258	156	65	20	19
28	42	86	115	115	2,290	875	334	220	149	65	19	24
29	39	75	95	331		920	306	189	324	67	19	21
30	46	70	75	1,400		1,080	323	156	265	161	19	60
31	39		60	3,560		2,820		130		243	18	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				1,237	69	20	39.9	0.124	0.14			
November.....				2,651	316	23	88.4	.275	.31			
December.....				3,955	398	60	128	.399	.46			
Calendar year 1938				170,754	3,970	20	468	1.46	19.80			
January.....				9,902	3,560	55	319	.994	1.15			
February.....				52,426	4,100	830	1,872	5.83	6.07			
March.....				41,000	3,670	406	1,323	4.12	4.75			
April.....				27,615	2,650	306	920	2.87	3.20			
May.....				8,416	1,030	116	271	.844	.97			
June.....				5,832	789	76	194	.604	.67			
July.....				5,307	538	65	171	.533	.61			
August.....				1,738	146	18	56.1	.175	.20			
September.....				813	60	16	27.1	.084	.09			
Water year 1938-39.....				160,892	4,100	16	441	1.37	18.62			

Mahoning Creek at Mahoning Creek Dam, Pa.

Location.- Chain gage, lat. 40°55'40", long. 79°17'30" at highway bridge at McCrea Furnace, three-quarters of a mile below Mahoning Creek Dam, Armstrong County, 1 mile southwest of Eddyville, and 2 miles above mouth of Pine Run. Zero of gage is 1,003.39 feet above mean sea level. (Corps of Engineers, U.S. Army, benchmark).

Drainage area.- 344 square miles.

Records available.- August 1938 to September 1939.

Extremes.- Maximum discharge during period Aug. 15 to Sept. 30, 1938, 164 second-feet Aug. 18 (gage height, 2.14 feet); minimum, 27 second-feet Sept. 10 (gage height, 1.36 feet).

Maximum discharge during water year 1938-39, 5,420 second-feet Feb. 3 (gage height, 6.5 feet, from graph based on gage readings); minimum, 17 second-feet Sept. 26, 27 (gage height, 1.21 feet).

Remarks.- Records good except those below 50 second-feet and those for periods of ice effect, Nov. 26-29, Dec. 14 to Jan. 2, Jan. 14-28 (computed on basis of gage heights, weather records, and records for nearby stations), all of which are fair. Gage read twice daily. Some regulation owing to construction operations at Mahoning Creek Dam. Discharge measurements and gage-height record prior to Sept. 1, 1939, furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												30
2												30
3												34
4												34
5												32
6												30
7												28
8												28
9												28
10												27
11												30
12												32
13												65
14												60
15											113	68
16											100	65
17											91	52
18											154	40
19											106	33
20											78	30
21											65	29
22											62	48
23											49	53
24											53	71
25											53	71
26											48	50
27											45	38
28											40	34
29											38	30
30											36	28
31											34	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....												
November.....												
December.....												
Calendar year 1937												
January.....												
February.....												
March.....												
April.....												
May.....												
June.....												
July.....												
August 15-31.....					154	34	67.4	0.196	0.12			
September.....					71	27	40.9	.119	.13			
Water year 1937-38												

Mahoning Creek at Mahoning Creek Dam, Pa.
(Continued)

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	27	104	65	2,120	3,100	2,220	341	131	440	142	26
2	28	29	115	95	1,580	2,120	2,520	318	136	262	106	27
3	27	31	170	117	4,170	1,550	1,890	271	126	189	91	27
4	26	28	397	158	2,620	1,120	1,450	235	117	147	155	27
5	28	45	615	185	1,660	1,020	1,120	213	111	142	126	41
6	32	40	414	341	1,450	1,200	940	189	96	126	98	38
7	34	37	283	414	1,550	980	1,430	182	93	108	73	29
8	40	40	224	365	1,450	825	1,350	170	87	170	71	35
9	45	41	235	296	1,770	788	900	164	136	472	54	29
10	40	46	213	231	2,000	715	825	224	134	189	46	28
11	30	43	206	250	3,890	585	788	206	147	131	39	26
12	32	39	179	231	2,560	1,900	715	176	129	102	35	29
13	30	37	161	202	1,660	3,730	615	158	126	96	34	30
14	34	60	130	165	1,300	2,580	555	144	117	472	40	32
15	48	94	100	160	2,260	2,520	1,070	136	117	313	35	29
16	43	73	85	190	2,560	2,520	1,350	126	102	152	39	28
17	32	49	80	210	1,660	1,770	1,350	122	93	111	32	26
18	30	52	80	180	1,350	1,300	1,200	117	96	102	26	26
19	32	82	75	165	1,200	940	1,200	111	381	96	28	25
20	53	280	70	150	1,550	900	980	147	399	85	28	24
21	59	296	70	165	1,450	750	825	144	318	71	30	26
22	54	167	65	195	1,350	648	680	996	242	65	25	24
23	60	134	65	185	1,120	555	585	1,160	1,010	56	30	23
24	65	124	60	170	940	468	525	715	439	41	28	22
25	43	106	60	155	750	440	414	495	296	38	28	18
26	36	100	70	140	788	389	414	565	213	37	26	17
27	40	90	105	135	1,900	414	389	267	167	41	27	17
28	34	85	130	130	1,890	788	345	224	134	35	27	24
29	32	80	115	283	980	900	318	192	432	39	28	23
30	28	76	95	1,100	1,410	318	173	336	115	27	52	
31	28		80	3,680		3,220		142		277	28	

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	1,170	65	26	37.7	0.110	0.13
November.....	2,430	296	27	81.0	.235	.26
December.....	4,851	615	60	156	.453	.52
Calendar year 1938						
January.....	10,478	3,650	65	338	.983	1.13
February.....	50,538	4,170	750	1,805	5.25	5.47
March.....	42,025	3,730	389	1,356	3.94	4.54
April.....	29,291	2,520	318	976	2.84	3.17
May.....	8,623	1,160	111	278	.808	.93
June.....	6,451	1,010	87	215	.625	.70
July.....	4,720	472	35	152	.442	.51
August.....	1,602	155	25	51.7	.150	.17
September.....	828	52	17	27.6	.080	.09
Water year 1938-39	163,007	4,170	17	447	1.30	17.62

Crooked Creek at Idaho, Pa.

Location.- Water-stage recorder, lat. 40°39'15", long. 79°21'00", at highway bridge at Idaho, Armstrong County, 1½ miles below mouth of Plum Creek and 2½ miles west of Shelocta. Zero of gage is 961.04 feet above mean sea level (Buffalo, Rochester & Pittsburgh Railway benchmark).

Drainage area.- 191 square miles.

Records available.- February 1938 to September 1939.

Extremes.- Maximum discharge during year, 7,170 second-feet June 22 (gage height, 11.40 feet), from rating curve extended above 3,200 second-feet; minimum, 2.8 second-feet Sept. 20, 24; minimum daily discharge, 3.2 second-feet Sept. 24. 1938-39: Maximum discharge, that of June 22, 1939; minimum, that of Sept. 20, 24, 1939; minimum daily discharge, that of Sept. 24, 1939. Maximum stage known, 18.57 feet, from floodmark, March 1936 (discharge not determined).

Remarks.- Records good except those for periods of ice effect, Nov. 23 to Dec. 3, Dec. 15 to Jan. 4, Jan. 13-28, Feb. 22-24 (computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations), and those for periods of missing gage heights, Oct. 18-21, 24-26, Mar. 11-21 (computed on basis of records for station near Ford City), all of which are fair.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5	9.3	40	30	1,330	1,380	1,060	196	28	246	161	7.6
2	7.5	8.1	45	30	1,680	825	1,190	137	36	108	106	7.6
3	9.3	8.7	35	45	3,270	559	813	118	39	81	109	7.0
4	8.7	8.7	279	70	1,650	424	559	106	39	62	111	11
5	9.3	10	236	96	894	478	414	97	32	72	72	16
6	8.7	15	172	128	666	301	600	90	25	56	58	11
7	10	18	136	121	1,230	460	710	81	21	47	45	9.4
8	12	13	105	107	1,120	358	538	81	52	152	41	8.2
9	12	12	103	94	1,190	343	453	81	142	179	41	8.2
10	12	13	110	94	1,960	280	442	106	90	72	32	7.6
11	8.7	13	98	103	2,290	250	384	83	83	49	27	8.8
12	5.9	12	94	87	1,110	1,020	374	68	58	41	24	7.0
13	6.9	12	84	61	710	3,000	319	62	41	36	26	9.4
14	10	19	68	55	522	1,070	307	55	41	784	55	7.0
15	12	23	55	50	1,240	1,000	850	55	39	191	34	7.0
16	10	16	50	60	922	640	918	51	30	106	26	6.4
17	9.3	13	45	65	666	450	994	49	26	81	22	7.6
18	9.0	15	40	60	559	350	688	43	27	66	18	6.4
19	10	77	35	50	510	240	622	41	40	64	15	4.0
20	11	186	35	45	558	270	471	39	51	49	13	3.6
21	11	86	30	50	464	220	377	140	41	41	12	4.6
22	22	60	30	55	380	195	310	294	2,560	32	11	3.6
23	15	45	30	60	320	156	246	178	2,790	26	11	3.6
24	14	35	30	55	270	144	215	123	734	25	12	3.2
25	13	35	25	50	283	132	178	90	374	26	12	5.8
26	11	30	25	45	704	130	168	72	226	25	24	4.6
27	12	30	35	45	1,270	131	156	60	141	27	24	5.8
28	11	30	55	40	1,640	552	137	53	111	30	24	6.4
29	12	30	60	119	368	123	51	99	168	25	24	7.6
30	10	35	45	2,160	3,100	1,040	141	43	182	492	74	11
31	11		35	3,100		1,450		32		384	64	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches		
October.....				331.8	22	5.9	10.7	0.066		0.06		
November.....				916.8	185	8.1	30.6	.160		.18		
December.....				2,265	279	25	73.1	.383		.44		
Calendar year 1938.....												
January.....				7,230	3,100	30	233	1.22		1.41		
February.....				29,388	3,270	270	1,050	5.50		5.73		
March.....				18,517	3,000	130	597	3.13		3.61		
April.....				14,667	1,190	123	489	2.56		2.86		
May.....				2,775	294	32	89.5	.469		.54		
June.....				8,198	2,790	21	273	1.43		1.60		
July.....				3,817	784	25	123	.644		.74		
August.....				1,142.4	161	6.4	36.9	.193		.22		
September.....				217.0	16	3.2	7.23	.038		.04		
Water year 1938-39.....				89,455.0	3,270	3.2	245	1.28		17.43		

Crooked Creek near Ford City, Pa.

Location.- Chain gage, lat. 40°43'00", long. 79°31'50", at highway bridge 3½ miles south of Ford City, Armstrong County, and 5 miles above mouth. Zero of gage is 786.12 feet above mean sea level (general adjustment of 1907).

Drainage area.- 280 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in report of U. S. Geological Survey; October 1909 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 28 years (1910-13, 1914-39), 436 second-feet.

Extremes.- Maximum discharge during year, 8,200 second-feet June 23 (gage height, 11.2 feet, from graph based on gage readings); minimum, 4.0 second-feet Sept. 20-23. 1909-39: Maximum discharge, 21,000 second-feet Mar. 18, 1936 (gage height, 17.86 feet, from floodmark), from rating curve extended on basis of contracted-opening determination; minimum observed, 0.1 second-foot Sept. 11, 25, 26, 1932.

Remarks.- Records fair except those for periods of ice effect, Nov. 24-29, Dec. 20 to Jan. 4, Jan. 15-28, Feb. 22-25, which were computed on basis of gage heights, weather records, and records for nearby stations, and are poor. Discharge for period of erroneous gage heights, July 19, 20, computed on basis of records for station at Idaho. Gage read twice daily. Some regulation owing to power operations and construction of Crooked Creek Dam upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	10	15	44	35	1,930	2,170	1,570	260	46	202	202	9	
2	10	15	53	70	1,850	1,180	1,640	230	34	202	150	8	
3	9.5	15	40	85	4,390	910	1,240	189	62	164	105	11	
4	8.5	15	206	100	2,620	675	810	164	87	120	128	11	
5	8.5	15	224	113	1,180	675	585	137	61	82	100	16	
6	9.0	16	211	136	910	810	630	130	43	76	72	27	
7	7.5	21	165	155	1,120	675	860	109	21	82	67	18	
8	9.0	24	132	138	1,360	505	810	94	70	72	48	14	
9	8.0	27	124	122	1,710	445	675	120	189	208	46	12	
10	10	22	129	113	2,330	408	630	107	176	184	42	9	
11	13	21	125	124	2,010	372	545	109	164	87	41	9	
12	13	22	118	117	1,430	2,580	545	92	100	54	31	11	
13	13	21	84	100	1,060	4,030	545	78	82	96	30	9	
14	11	23	51	73	810	2,450	720	72	70	189	27	8	
15	14	25	38	60	1,400	1,120	810	67	60	490	50	8	
16	15	28	84	65	1,180	742	1,180	64	49	245	30	8	
17	15	28	90	75	960	585	1,180	55	41	164	26	8	
18	15	26	85	65	765	465	1,010	54	33	134	24	9	
19	13	34	51	60	720	355	860	50	48	90	22	7	
20	15	172	40	55	720	390	675	78	73	62	20	4	
21	15	134	35	60	630	305	505	278	67	43	17	4	
22	36	91	35	60	560	275	445	408	1,400	33	19	4	
23	38	69	30	70	490	230	355	320	7,130	54	17	4	
24	24	55	30	65	420	202	305	260	2,670	49	14	5	
25	19	50	30	60	370	202	275	216	747	33	13	7	
26	16	45	35	55	585	189	245	113	465	38	12	7	
27	14	45	55	50	1,570	216	230	87	275	38	10	6	
28	15	40	80	50	2,490	810	202	109	290	61	12	7	
29	14	40	70	138	585	189	113	216	111	8	9	9	
30	16	39	60	2,550	1,110	189	88	202	520	10	11		
31	12		45	4,910	2,200		60		545	11			
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				446		38		7.5		14.4		0.061	0.06
November.....				1,193		172		15		39.8		.142	.16
December.....				2,599		224		30		83.8		.299	.34
Calendar year 1938				111,179.7		3,680		7.2		305		1.09	14.75
January.....				9,929		4,910		35		320		1.14	1.31
February.....				37,570		4,390		370		1,342		4.79	4.99
March.....				27,866		4,030		189		899		3.21	3.70
April.....				20,460		1,640		189		682		2.43	2.71
May.....				4,311		408		50		139		.496	.57
June.....				14,971		7,130		21		499		1.78	1.99
July.....				4,528		545		33		146		.521	.60
August.....				1,404		202		8		45.3		.162	.19
September.....				280		27		4		9.33		.033	.04
Water year 1938-39				125,557		7,130		4		344		1.23	16.66

Stony Creek at Hollsopple, Pa.

Location.- Chain gage, lat. 40°12'35", long. 78°55'40", at highway bridge at Hollsopple, Somerset County, 1.2 miles below mouth of Quemahoning Creek. Zero of gage is 1,514.69 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 244 square miles.

Records available.- August 1937 to September 1939.

Extremes.- Maximum discharge during period Aug. 1 to Sept. 30, 1937, 1,640 second-feet Aug. 28 (gage height, 4.7 feet, from graph based on gage readings); minimum observed, 23 second-feet Sept. 25 (gage height, 1.94 feet).

Maximum discharge during water year 1937-38, 5,260 second-feet Oct. 28 (gage height, 7.2 feet, from graph based on gage readings); minimum observed, 5.2 second-feet Aug. 31 (gage height, 1.73 feet).

Maximum discharge during water year 1938-39, 4,220 second-feet Feb. 3 (gage height, 6.7 feet, from graph based on gage readings); minimum observed, 9.0 second-feet Oct. 1, 3 (gage height, 1.80 feet).

Discharge, in second-feet, water year October 1936 to September 1937.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											35	82
2											38	67
3											40	62
4											30	75
5											27	138
6											28	206
7											28	131
8											35	92
9											40	70
10											35	59
11											214	65
12											112	75
13											88	62
14											52	52
15											40	47
16											33	42
17											27	38
18											28	36
19											166	35
20											72	36
21											57	31
22											57	31
23											72	27
24											65	28
25											54	25
26											724	25
27											812	25
28											316	25
29											146	25
30											123	25
31											101	25

Month	Observed				Storage and Diversion (Equivalent)	Adjusted for Storage and Diversion		
	Second- foot-days	Maximum	Minimum	Mean	Mean	Mean	Per square mile	Run-off in inches
October.....								
November.....								
December.....								
Calendar year								
January.....								
February.....								
March.....								
April.....								
May.....								
June.....								
July.....								
August.....	3,695	812	27	119	+32.2	151	0.619	0.71
September.....	1,737	206	25	57.9	+12.1	70.0	.287	.32
Water year 1936-37								

Stony Creek at Hollsopple, Pa.
(Continued)

Remarks.- Records fair. Discharge interpolated for days of missing gage heights, Aug. 1, 8, 15, 1937. Discharge for periods of ice effect, Nov. 21-25, Dec. 2-14, 1937, Jan. 8-23, 28-30, Mar. 1, 2, Nov. 24 to Dec. 1, Dec. 19, 28-31, 1938, Jan. 1, 2, 15-29, 1939, computed on basis of gage heights, weather records, and records for nearby stations. Gage read twice daily. Regulation from mine pumpage and storage in Quemahoning Reservoir. Last three columns of monthly table adjusted for diversion to Cambria plant of Bethlehem Steel Co., and for storage in Quemahoning Reservoir (capacity, 21,000,000,000 gallons); no correction made for evaporation and seepage losses. Figures with minus sign indicate that evaporation and seepage losses exceeded natural flow. Records of diversion and change in reservoir contents furnished by Bethlehem Steel Co. Gage heights and discharge measurements prior to Sept. 1, 1939, furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.																																																																																																																																														
1	25	414	223	380	250	90	424	78	70	30	27	6.6																																																																																																																																														
2	24	320	150	386	150	150	258	75	47	35	27	7.2																																																																																																																																														
3	24	292	115	302	119	188	257	65	44	31	24	13																																																																																																																																														
4	27	241	120	360	188	188	184	57	36	27	25	12																																																																																																																																														
5	36	223	130	278	163	210	142	52	40	23	27	12																																																																																																																																														
6	98	210	110	210	182	876	138	57	75	18	23	11																																																																																																																																														
7	75	171	92	210	1,240	668	138	47	57	17	19	8.4																																																																																																																																														
8	40	163	80	200	872	468	171	42	189	15	16	22																																																																																																																																														
9	33	154	72	120	605	538	458	42	59	17	14	27																																																																																																																																														
10	42	142	66	130	702	530	486	40	40	19	16	17																																																																																																																																														
11	92	131	60	130	768	297	380	44	75	17	72	18																																																																																																																																														
12	67	127	56	110	545	246	350	42	127	28	45	16																																																																																																																																														
13	57	197	54	90	414	294	316	38	175	25	30	44																																																																																																																																														
14	47	228	52	80	458	963	273	42	105	24	25	45																																																																																																																																														
15	45	210	246	70	518	2,980	197	250	59	22	23	31																																																																																																																																														
16	48	175	584	64	360	1,880	180	214	47	22	19	24																																																																																																																																														
17	36	171	1,310	70	228	1,390	175	105	36	24	17	22																																																																																																																																														
18	31	164	1,660	62	192	1,080	171	105	42	31	23	18																																																																																																																																														
19	54	150	855	59	192	768	397	283	49	27	18	17																																																																																																																																														
20	142	146	485	84	485	575	264	688	42	23	14	17																																																																																																																																														
21	138	130	360	66	485	458	210	1,540	36	162	13	15																																																																																																																																														
22	95	110	306	84	350	370	171	1,470	33	72	11	19																																																																																																																																														
23	150	94	311	140	316	330	138	975	36	313	11	27																																																																																																																																														
24	208	82	246	273	269	306	119	905	38	95	9.8	24																																																																																																																																														
25	154	86	223	775	210	292	116	606	35	78	9.0	24																																																																																																																																														
26	119	150	201	770	197	228	112	424	30	47	8.4	20																																																																																																																																														
27	138	316	175	474	127	201	108	325	72	53	9.8	15																																																																																																																																														
28	2,600	316	180	280	95	175	92	255	40	57	7.8	13																																																																																																																																														
29	2,280	365	184	220		146	88	180	38	40	6.6	12																																																																																																																																														
30	905	297	159	200		146	101	142	35	33	6.0	11																																																																																																																																														
31	578		175	246		370		98		30	5.6																																																																																																																																															
<table><tr><th rowspan="2">Month</th><th colspan="4">Observed</th><th rowspan="2">Storage and Diversion (Equivalent) Mean</th><th colspan="3">Adjusted for Storage and Diversion</th></tr><tr><th>Second-foot-days</th><th>Maximum</th><th>Minimum</th><th>Mean</th><th>Mean</th><th>Per square mile</th><th>Run-off in inches</th></tr><tr><td>October.....</td><td>8,377</td><td>2,600</td><td>24</td><td>270</td><td>+135</td><td>405</td><td>1.66</td><td>1.91</td></tr><tr><td>November.....</td><td>5,955</td><td>414</td><td>82</td><td>199</td><td>+ 79.3</td><td>278</td><td>1.14</td><td>1.27</td></tr><tr><td>December.....</td><td>9,010</td><td>1,660</td><td>52</td><td>291</td><td>+213</td><td>504</td><td>2.07</td><td>2.39</td></tr><tr><td>Calendar year 1937</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>January.....</td><td>6,895</td><td>775</td><td>56</td><td>222</td><td>+154</td><td>376</td><td>1.54</td><td>1.78</td></tr><tr><td>February.....</td><td>10,677</td><td>1,240</td><td>95</td><td>381</td><td>+139</td><td>520</td><td>2.13</td><td>2.22</td></tr><tr><td>March.....</td><td>16,988</td><td>2,980</td><td>90</td><td>548</td><td>+137</td><td>685</td><td>2.81</td><td>3.24</td></tr><tr><td>April.....</td><td>6,618</td><td>485</td><td>88</td><td>221</td><td>+189</td><td>410</td><td>1.68</td><td>1.87</td></tr><tr><td>May.....</td><td>9,255</td><td>1,540</td><td>38</td><td>299</td><td>+110</td><td>409</td><td>1.68</td><td>1.94</td></tr><tr><td>June.....</td><td>1,807</td><td>189</td><td>30</td><td>60.2</td><td>+ 62.1</td><td>122</td><td>.500</td><td>.56</td></tr><tr><td>July.....</td><td>1,435</td><td>313</td><td>15</td><td>46.3</td><td>+ 60.4</td><td>107</td><td>.439</td><td>.51</td></tr><tr><td>August.....</td><td>602.0</td><td>72</td><td>5.6</td><td>19.4</td><td>+ 55.7</td><td>75.1</td><td>.508</td><td>.56</td></tr><tr><td>September.....</td><td>568.2</td><td>45</td><td>6.6</td><td>18.9</td><td>+ 22.0</td><td>40.9</td><td>.168</td><td>.19</td></tr><tr><td>Water year 1937-38</td><td>78,197.2</td><td>2,980</td><td>5.6</td><td>214</td><td>+113</td><td>327</td><td>1.34</td><td>18.24</td></tr></table>													Month	Observed				Storage and Diversion (Equivalent) Mean	Adjusted for Storage and Diversion			Second-foot-days	Maximum	Minimum	Mean	Mean	Per square mile	Run-off in inches	October.....	8,377	2,600	24	270	+135	405	1.66	1.91	November.....	5,955	414	82	199	+ 79.3	278	1.14	1.27	December.....	9,010	1,660	52	291	+213	504	2.07	2.39	Calendar year 1937									January.....	6,895	775	56	222	+154	376	1.54	1.78	February.....	10,677	1,240	95	381	+139	520	2.13	2.22	March.....	16,988	2,980	90	548	+137	685	2.81	3.24	April.....	6,618	485	88	221	+189	410	1.68	1.87	May.....	9,255	1,540	38	299	+110	409	1.68	1.94	June.....	1,807	189	30	60.2	+ 62.1	122	.500	.56	July.....	1,435	313	15	46.3	+ 60.4	107	.439	.51	August.....	602.0	72	5.6	19.4	+ 55.7	75.1	.508	.56	September.....	568.2	45	6.6	18.9	+ 22.0	40.9	.168	.19	Water year 1937-38	78,197.2	2,980	5.6	214	+113	327	1.34	18.24
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June.....	1,807	189	30	60.2	+ 62.1	122	.500	.56																																																																																																																																																		
July.....	1,435	313	15	46.3	+ 60.4	107	.439	.51																																																																																																																																																		
August.....	602.0	72	5.6	19.4	+ 55.7	75.1	.508	.56																																																																																																																																																		
September.....	568.2	45	6.6	18.9	+ 22.0	40.9	.168	.19																																																																																																																																																		
Water year 1937-38	78,197.2	2,980	5.6	214	+113	327	1.34	18.24																																																																																																																																																		

Stony Creek at Hollsopple, Pa.
(Continued)

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.8	14	24	18	638	2,250	638	1,180	34	137	29	12
2	11	13	30	24	585	1,220	870	86	90	27	12	12
3	9.8	12	36	35	2,490	800	702	575	221	71	27	17
4	11	12	75	67	2,200	638	515	430	200	57	19	16
5	11	14	175	283	926	1,520	586	340	164	74	18	71
6	15	14	175	325	670	1,550	458	292	96	86	19	32
7	15	23	105	278	940	1,050	800	234	66	74	19	21
8	15	20	75	138	940	800	545	250	52	87	38	18
9	13	24	47	108	1,160	638	485	192	66	47	33	17
10	13	22	57	101	1,640	458	545	180	66	39	26	16
11	12	17	59	98	2,250	402	658	164	48	45	22	16
12	11	16	62	85	1,320	450	670	129	39	41	20	12
13	11	16	67	82	870	485	575	122	45	38	18	15
14	11	16	52	54	800	414	545	172	137	90	18	14
15	11	17	45	50	1,340	485	606	152	96	93	17	13
16	12	17	44	60	1,310	515	702	125	50	66	15	12
17	13	15	38	56	798	370	1,900	104	38	45	16	12
18	12	16	35	51	768	311	1,550	86	45	36	18	13
19	12	20	30	48	702	302	1,310	90	79	38	18	12
20	13	40	33	45	670	234	906	86	221	47	16	12
21	13	45	28	56	702	192	702	79	141	57	19	12
22	15	30	23	63	606	172	638	74	118	39	18	12
23	14	30	20	50	360	164	458	74	448	33	16	12
24	17	21	20	47	355	148	345	68	316	30	15	11
25	15	19	20	42	252	141	252	60	164	27	17	12
26	14	18	18	37	226	141	250	48	110	28	15	12
27	12	18	22	33	638	133	292	48	76	34	14	12
28	15	18	18	30	2,100	238	800	50	114	36	13	18
29	13	19	17	42		278	247	47	164	32	12	20
30	14	22	20	654		328	475	39	129	38	12	39
31	12		16	1,050		755		34		34	12	

Month	Observed				Storage and Diversion (Equivalent)		Adjusted for Storage and Diversion		
	Second-foot-days	Maximum	Minimum	Mean	Mean		Mean	Per square mile	Run-off in inches
October.....	393.6	17	9.8	12.7	+7.8		20.5	0.084	0.10
November.....	593	45	12	19.8	+16.7		36.5	.150	.17
December.....	1,486	175	16	47.9	+58.3		104	.426	.49
Calendar year 1938	57,317.8	2,980	5.6	157	+83.8		241	.988	13.43
January.....	4,110	1,050	18	133	+121		254	1.04	1.80
February.....	28,235	2,490	226	1,008	+348		1,355	5.56	5.79
March.....	17,542	2,250	133	566	+178		744	3.05	3.62
April.....	19,183	1,900	800	639	+112		751	3.08	3.44
May.....	6,374	1,180	34	206	+77.1		285	1.16	1.34
June.....	3,629	448	34	121	+80.4		201	.824	.92
July.....	1,659	137	27	53.5	+103		156	.639	.74
August.....	591	38	12	19.1	-27.8		8.7	-.036	-.04
September.....	522	71	11	17.4	+30.0		47.4	+.194	.22
Water year 1938-39	84,317.6	2,490	9.8	231	+90.1		321	1.32	17.97

Stony Creek at Ferndale, Pa.

Location.- Chain gage, lat. 40°17'10", long. 78°55'10", at highway bridge at Ferndale, Cambria County, 0.4 mile below mouth of Bens Creek, 1.2 miles above Johnstown city limit, and 5.2 miles above confluence with Little Conemaugh River. Zero of gage is 1,183.84 feet above mean sea level (city of Johnstown datum).

Drainage area.- 451 square miles.

Records available.- December 1938 to September 1939.

Extremes.- Maximum discharge during period, 9,280 second-feet Feb. 3 (gage height, 8.8 feet, from graph based on gage readings); minimum observed, 12 second-feet Sept. 24 (gage height, 1.55 feet).

Remarks.-Records good except those below 20 second-feet, which are fair, and those for periods of ice effect, Dec. 17 to Jan. 2, Jan. 15-28, which were computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations, and are poor. Gage read twice daily. Regulation from mine pumpage and storage in several reservoirs upstream. Last three columns of monthly table adjusted for diversion from and storage in Quemahoning, North Fork of Bens Creek, Dalton Run, Mill Creek No. 1, and Mill Creek No. 2 Reservoirs, which have a combined capacity of 1,788,000,000 cubic feet; no correction made for evaporation and seepage losses. Records of diversion from and storage in reservoirs furnished by Bethlehem Steel Co. and Johnstown Water Co. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				27	1,290	5,000	1,190	2,090	92	512	53	14
2				32	1,230	2,220	1,500	1,500	204	337	44	16
3				62	6,180	1,500	1,190	1,060	377	242	38	18
4				218	4,560	1,290	970	930	424	214	35	23
5				452	2,090	1,950	810	770	299	238	36	65
6				770	1,500	3,340	1,010	668	186	242	31	62
7				512	1,840	2,360	1,380	572	144	193	27	35
8			162	337	1,610	1,610	1,010	482	126	162	140	28
9			138	268	1,960	1,290	890	482	138	126	86	18
10			129	254	2,710	1,010	1,100	462	120	114	56	18
11			148	258	3,640	810	1,100	382	112	112	43	16
12			138	222	2,090	770	1,290	337	100	102	35	16
13			151	193	1,610	1,010	1,100	352	102	92	30	21
14			114	126	1,500	970	1,100	572	268	409	27	17
15			88	120	3,090	1,290	1,290	424	165	234	25	16
16			63	150	2,430	1,290	1,290	333	120	154	24	14
17			64	140	1,500	970	3,340	294	95	104	20	14
18			60	130	1,500	770	2,780	254	436	97	20	14
19			50	115	1,500	635	2,360	226	700	179	22	14
20			52	110	1,720	700	1,720	207	668	148	28	16
21			43	125	1,610	635	1,290	242	482	107	28	15
22			38	140	1,190	572	1,190	250	424	90	25	14
23			33	110	890	512	890	207	1,040	76	21	14
24			30	96	810	482	735	186	668	65	21	13
25			29	80	685	452	635	158	424	63	19	14
26			28	70	668	424	668	129	342	58	18	14
27			35	63	1,200	382	735	123	281	72	16	16
28			33	58	3,750	572	542	117	333	123	17	20
29			28	238		542	700	129	424	104	22	23
30			33	1,440		864	1,140	109	452	80	16	66
31			26	2,300		1,390		100		63	16	

Month	Observed				Diversion and change in contents (Mean)	Adjusted for diversion and change in contents		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October.....								
November.....								
December.....	1,713	162	26	71.4				
Calendar year 1938								
January.....	9,216	2,300	27	297	+131	428	0.949	1.09
February.....	56,343	6,180	668	2,012	+354	2,366	5.25	5.47
March.....	37,612	5,000	382	1,213	+183	1,396	3.10	3.57
April.....	36,945	3,340	542	1,232	+114	1,346	2.98	3.32
May.....	14,137	2,090	100	456	+ 84.5	540	1.20	1.38
June.....	9,746	1,040	92	325	+ 86.2	411	.911	1.02
July.....	4,892	512	58	158	+108	266	.590	.68
August.....	1,039	140	16	33.5	- 26.5	7.0	.016	.02
September.....	664	66	13	22.1	+ 31.4	53.5	.119	.13
Water year 1938-39								

Conemaugh River at Seward, Pa.

Location.- Water-stage recorder, lat. 40°25'10", long. 79°01'40", at highway bridge at Seward, Westmoreland County, 9 miles northwest of Johnstown. Zero of gage is 1,075.64 feet above mean sea level (preliminary levels of 1920).

Drainage area.- 715 square miles.

Records available.- May 1938 to September 1939.

Extremes.- Maximum discharge during year, 15,100 second-feet Feb. 3 (gage height, 9.00 feet); minimum daily (estimated), 105 second-feet Dec. 28, 29, 31.

1938-39: Maximum discharge, that of Feb. 3, 1939; minimum daily, that of Dec. 28, 29, 31, 1938.

Maximum stage known, 26.4 feet, from floodmarks, Mar. 18, 1936 (discharge, about 90,000 second-feet).

Remarks.- Records good except those for periods of ice effect, Dec. 20 to Jan. 1, Jan. 15-28, which were computed on basis of gage heights, weather records, one discharge measurement, and records for stations upstream and downstream, and are poor. Discharge for period of recorder failure, Dec. 31 to Jan. 6, computed on basis of once-daily gage readings. Regulation from operation of steel mills and storage in several reservoirs upstream. Last three columns of monthly table adjusted for storage in Quemahoning, North Fork of Bens Creek, Dalton Run, Mill Creek No. 1, Mill Creek No. 2, Hinkston, Saltlick, and Laurel Run Reservoirs, which have a combined capacity of 2,060,120,000 cubic feet; no correction made for evaporation and seepage losses. Records of reservoir contents furnished by Bethlehem Steel Co. and Johnstown Water Co.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	193	172	229	110	2,460	7,240	2,440	3,500	360	1,260	245	198
2	161	180	229	188	2,220	3,970	2,820	2,930	456	836	240	236
3	180	180	220	253	8,720	2,930	2,460	2,220	720	630	220	198
4	193	184	314	433	8,160	2,460	2,020	1,860	719	558	216	220
5	193	193	719	927	3,980	3,050	1,730	1,610	680	588	206	263
6	216	164	708	1,180	2,930	5,200	1,870	1,420	499	598	188	277
7	216	172	598	1,060	3,150	4,160	2,650	1,280	412	538	202	224
8	202	184	429	719	2,930	2,930	2,040	1,170	415	508	426	202
9	188	180	368	608	3,600	2,480	1,800	1,070	446	446	320	198
10	198	172	345	578	4,890	2,040	1,950	1,030	382	420	271	188
11	202	172	332	578	6,960	1,730	2,120	918	360	398	240	184
12	198	168	362	528	4,290	1,660	2,240	828	339	368	211	193
13	184	161	412	463	3,150	1,970	2,100	792	350	360	193	216
14	198	168	345	352	2,820	1,840	2,000	1,070	516	1,750	198	206
15	172	172	307	295	4,770	2,420	2,520	918	502	870	211	202
16	161	172	250	320	4,680	2,580	2,630	755	382	558	206	193
17	164	164	250	360	3,150	2,040	5,100	697	326	429	206	206
18	176	161	258	318	2,820	1,660	4,750	641	773	405	198	188
19	176	193	229	280	2,670	1,450	4,100	608	1,080	446	207	188
20	193	211	196	270	3,040	1,450	3,160	578	1,240	438	193	188
21	198	266	210	300	3,040	1,320	2,580	588	931	382	206	188
22	188	224	188	350	2,600	1,240	2,200	608	786	332	202	188
23	157	211	160	290	2,000	1,110	1,840	568	3,090	295	198	180
24	164	220	140	250	1,800	1,030	1,590	518	1,700	295	198	172
25	176	206	125	230	1,480	998	1,430	464	1,140	288	198	176
26	180	220	110	215	1,560	957	1,360	438	879	271	193	184
27	184	193	125	200	2,240	918	1,530	398	731	288	180	210
28	188	184	105	190	5,600	1,140	1,280	433	697	375	176	210
29	176	198	105	398	1,240	1,360	1,360	398	944	332	193	212
30	161	216	120	2,190	1,580	1,870	382	1,010	271	193	193	265
31	168	105	4,240	2,930	2,930			375		266	198	

Month	Observed				Storage (Mean)	Adjusted for Storage		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October.....	5,704	216	157	184	-84.3	100	0.140	0.16
November.....	5,661	266	161	189	-66.0	123	.172	.19
December.....	8,607	719	105	278	-1.5	276	.386	.45
Calendar year 1938								
January.....	18,670	4,240	110	602	+65.0	667	.933	1.08
February.....	101,610	8,720	1,480	3,629	+264	3,893	5.44	5.66
March.....	69,723	7,240	918	2,249	+46.5	2,296	3.21	3.70
April.....	69,330	5,100	1,280	2,311	-2.5	2,309	3.23	3.60
May.....	31,065	3,500	375	1,002	-35.6	966	1.35	1.56
June.....	22,865	3,090	326	762	-27.5	735	1.03	1.15
July.....	15,799	1,750	266	510	-0.4	510	.713	.82
August.....	6,732	426	176	217	-128	89	.124	.14
September.....	6,153	277	172	205	-75.1	130	.182	.20
Water year 1938-39	361,919	8,720	105	992	-5.5	986	1.38	18.71

Kiskiminetas River at Vandergrift, Pa.

Location.- Water-stage recorder, lat. 40°36'20", long. 79°33'15", a third of a mile above highway bridge at Vandergrift, Westmoreland County, two-thirds of a mile above former site, and 2 miles above mouth of Pine Run. Zero of gage is 769.40 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 1,825 square miles.

Records available.- August 1937 to September 1939 in reports of U. S. Geological Survey; November 1915 to September 1939 in reports of Pennsylvania Department of Forests and Waters (gage heights only prior to 1937).

Extremes.- Maximum discharge during year, 30,800 second-feet Feb. 4 (gage height, 16.71 feet); minimum, 240 second-feet Nov. 2 (gage height, 2.97 feet).
1915-39: Maximum discharge, 185,000 second-feet Mar. 18, 1936 (gage height, 41.64 feet, from floodmark at present site), from rating curve extended on basis of slope-area determinations; minimum not determined.

Remarks.- Records excellent except those for periods of ice effect, Nov. 25-29, Dec. 20 to Jan. 2, Jan. 15-28, which were computed on basis of gage heights, weather records, and records for stations upstream, and are poor. Regulation from operation of steel mills and storage in several reservoirs upstream. Last three columns of monthly table adjusted for storage in Quemahoning, North Fork of Bens Creek, Dalton Run, Mill Creek No. 1, Mill Creek No. 2, Hinkston, Saltlick, and Laurel Run Reservoirs, which have a combined capacity of 2,060,120,000 cubic feet; no corrections made for evaporation and seepage losses. Records of reservoir contents furnished by Bethlehem Steel Co. and Johnstown Water Co.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	316	247	607	370	10,800	17,800	7,760	5,050	624	3,500	530	271
2	308	250	741	500	8,000	10,500	8,160	5,470	667	2,690	472	271
3	282	255	741	699	18,800	7,160	4,300	779	1,650	458	306	
4	253	255	1,030	902	24,800	5,650	5,650	3,470	1,110	1,280	509	308
5	269	272	1,590	1,240	11,600	5,290	4,660	3,000	1,190	1,150	405	340
6	282	298	1,750	1,800	7,960	8,600	4,460	2,620	1,010	1,190	391	385
7	292	312	1,500	2,020	9,150	9,570	6,970	2,340	786	1,110	358	388
8	319	298	1,320	1,750	9,000	6,780	5,830	2,090	772	974	370	364
9	316	301	1,110	1,420	9,000	5,470	4,930	1,970	1,150	910	534	310
10	298	308	1,040	1,280	12,000	4,660	4,750	2,030	1,280	958	546	292
11	282	295	978	1,240	19,100	3,960	5,290	1,970	1,070	821	445	288
12	288	285	918	1,200	12,600	4,140	5,290	1,700	934	702	391	281
13	295	282	1,070	1,110	8,160	5,710	5,290	1,500	807	642	374	288
14	312	351	1,110	955	6,590	4,220	4,750	1,420	716	997	373	305
15	327	346	918	600	8,080	5,290	6,030	1,600	814	2,780	325	308
16	327	342	762	660	12,100	5,650	7,960	1,460	842	1,340	337	298
17	292	319	720	700	7,560	5,200	10,800	1,280	681	942	331	305
18	258	308	755	650	6,780	4,050	10,600	1,190	630	765	322	298
19	258	408	685	580	6,020	3,310	8,780	1,150	992	744	313	281
20	296	790	520	540	6,210	3,070	7,160	1,110	1,420	737	308	267
21	346	985	560	680	6,590	2,920	5,830	1,060	1,550	723	313	275
22	335	755	480	760	5,830	2,550	4,840	1,080	1,940	612	292	275
23	342	620	430	600	4,750	2,340	4,050	1,150	6,260	552	305	267
24	301	513	400	540	4,140	2,090	3,390	1,100	5,250	495	302	267
25	261	430	370	490	3,630	1,970	3,000	950	2,830	468	290	259
26	264	400	360	460	4,540	1,920	2,620	856	1,920	463	285	253
27	269	380	430	420	8,160	1,860	2,620	786	1,500	532	281	255
28	267	370	390	400	9,080	4,610	2,620	737	1,320	630	275	253
29	272	430	360	1,370	4,480	2,210	744	1,370	610	267	293	
30	272	507	400	6,710	4,780	2,480	716	1,650	950	265	337	
31	267		350	21,000	9,660		667		751	273		

Month	Observed				Storage (Mean)	Adjusted for Storage		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October.....	9,065	346	253	292	-84.3	208	0.114	0.13
November.....	11,892	985	247	396	-66.0	330	.181	.20
December.....	24,375	1,750	330	786	-1.5	784	.430	.50
Calendar year 1938	824,365	21,700	247	2,259	-23.8	2,235	1.22	16.61
January.....	53,646	21,000	370	1,731	+65.0	1,796	.984	1.13
February.....	261,030	24,800	3,630	9,322	+264	9,586	5.25	5.47
March.....	165,260	17,800	1,860	5,331	+46.5	5,378	2.95	3.40
April.....	166,940	10,800	2,210	5,531	-2.5	5,529	3.03	3.38
May.....	56,566	5,470	667	1,825	-35.6	1,789	.980	1.13
June.....	43,854	6,250	624	1,462	-27.4	1,435	.786	.88
July.....	32,668	3,500	463	1,054	-0.4	1,054	.578	.67
August.....	11,240	546	265	363	-128	235	.129	.15
September.....	8,897	388	253	297	-75.1	222	.122	.14
Water year 1938-39	844,433	24,800	247	2,314	-5.5	2,308	1.26	17.18

Little Conemaugh River at East Conemaugh, Pa.

Location.- Chain gage, lat. 40°20'35", long. 78°53'05", at highway bridge between Franklin and East Conemaugh, Cambria County, 0.3 mile below mouth of Clapboard Run and 2.5 miles above confluence with Stony Creek. Zero of gage is 1,207.92 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 183 square miles.

Records available.- April to September 1939.

Extremes.- Maximum discharge during period, 2,410 second-feet June 23 (gage height, 6.0 feet, from graph based on gage readings); minimum observed, 3.6 second-feet Sept. 24 (gage height, 1.43 feet).

Remarks.- Records fair. Gage read twice daily. Regulation from water-supply reservoirs and diversion works upstream. Last three columns of monthly table adjusted for diversions from, and storage in Salt Lick and Laurel Run Reservoirs, and diversion at South Fork intake. Combined capacity of these reservoirs is 122,000,000 cubic feet; no correction made for evaporation and seepage losses. No adjustment made for diversion from, or storage in Wilmore Reservoir (capacity, 137,000,000 cubic feet; average diversion about 2.58 second-feet). Water is diverted at South Fork intake to Cambria plant of Bethlehem Steel Co. from Salt Lick and Laurel Run Reservoirs to city of Johnstown, and from Wilmore Reservoir to Pennsylvania Railroad water-supply system in Johnstown and vicinity. Records of diversion furnished by Bethlehem Steel Co. and Johnstown Water Co. Gage heights and discharge measurements prior to Sept. 1, 1939, furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							574	708	50	284	22	5.7
2							630	574	72	180	21	9.5
3							521	496	80	165	18	9.9
4							424	402	106	131	20	9.7
5							380	339	75	146	15	3.8
6							496	284	61	144	14	14
7							521	266	48	99	14	9.5
8							402	250	42	91	57	8.0
9							360	219	69	110	61	6.5
10							402	219	55	97	48	5.2
11							402	182	46	86	21	6.5
12							448	158	45	72	13	6.0
13							380	151	41	152	8.7	17
14							380	204	74	1,130	8.0	14
15							602	155	45	225	8.0	9.5
16							614	146	36	133	10	9.5
17							1,040	120	26	89	9.5	8.4
18							1,040	106	23	81	9.5	9.9
19							1,040	112	112	93	9.9	9.9
20							788	100	149	62	8.0	6.2
21							602	97	97	57	11	5.4
22							548	86	101	50	9.5	4.7
23							424	85	1,620	46	8.7	4.1
24							360	71	566	41	8.0	3.6
25							301	57	301	38	6.5	4.7
26							301	71	201	34	5.7	4.1
27							360	59	160	55	5.2	5.4
28							284	71	144	37	5.2	6.5
29							339	62	170	45	6.2	9.1
30							414	61	250	39	5.2	16
31								56		25	4.5	
Month		Observed				Storage and Diversion (Mean)		Adjusted for Storage and Diversion				
		Second- foot-days	Maximum	Minimum	Mean			Mean	Per square mile	Run-off in inches		
October.....												
November.....												
December.....												
Calendar year												
January.....												
February.....												
March.....												
April.....		15,377	1,040	284	513	39.2	552	3.02	3.37			
May.....		5,967	708	56	192	37.0	229	1.25	1.44			
June.....		4,865	1,620	23	162	35.1	197	1.08	1.20			
July.....		4,037	1,130	25	130	20.5	150	.820	.95			
August.....		471.3	61	4.5	15.2	30.0	45.2	.247	.28			
September.....		276.5	38	3.6	9.2	28.9	38.1	.208	.23			
Water year												

Blacklick Creek at Blacklick, Pa.

Location.- Chain gage, lat. 40°28'25", long. 79°12'15", at highway bridge at Gratton, a quarter of a mile northwest of Blacklick, Indiana County, and three-quarters of a mile below mouth of Two Lick Creek. Zero of gage is 945.94 feet above mean sea level (Pennsylvania State highway benchmark).

Drainage area.- 390 square miles.

Records available.- August 1904 to September 1913, October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1904 to December 1905, January 1907 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 32 years (1907-39), 671 second-feet.

Extremes.- Maximum discharge during year, 7,130 second-feet Jan. 31 (gage height, 7.8 feet, from graph based on gage readings); minimum observed, 22 second-feet Aug. 31, Sept. 23, 26 (gage height, 2.48 feet).

1904-39: Maximum discharge, 51,700 second-feet Mar. 18, 1936 (gage height, 15.88 feet, from floodmark), from rating curve extended on basis of slope-area determination; minimum, 6 second-feet Sept. 12, 16-27, 1908 (gage height, 1.88 feet).

Remarks.- Records good except those for periods of ice effect, Nov. 24 to Dec. 2, Dec. 16-25, Dec. 27 to Jan. 1, Jan. 15-28 (computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations), and those for periods of missing gage heights, Dec. 26, July 26 (computed on basis of records for nearby stations), all of which are fair. Gage read twice daily. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
1	41	33	75	115	2,380	3,730	1,930	845	87	608	75	28			
2	36	31	88	127	2,700	1,930	2,210	572	90	281	67	28			
3	34	31	107	172	5,950	1,430	1,610	478	100	198	59	39			
4	34	30	322	255	3,770	1,090	1,200	411	105	166	65	48			
5	33	33	428	319	2,070	1,200	940	361	95	206	57	73			
6	33	45	286	417	1,550	2,070	1,140	319	80	198	53	61			
7	44	47	263	371	2,360	1,430	1,490	300	65	136	48	40			
8	42	59	217	300	1,670	1,040	1,040	277	73	124	47	39			
9	34	47	210	255	2,210	940	890	250	217	238	63	34			
10	29	41	194	238	3,730	800	940	361	166	140	42	39			
11	30	47	190	250	4,880	670	845	300	225	102	48	32			
12	26	47	183	225	2,520	1,050	940	242	213	95	42	32			
13	29	42	217	202	1,670	2,070	845	221	136	90	36	47			
14	39	72	155	143	1,430	1,370	755	225	124	802	53	36			
15	47	103	74	160	2,800	1,430	1,800	190	116	340	55	33			
16	41	63	86	190	2,240	1,490	1,840	176	102	186	48	40			
17	33	49	94	170	1,430	1,090	2,140	169	85	149	37	34			
18	33	61	86	150	1,310	845	1,670	146	73	130	39	29			
19	27	93	80	140	1,260	608	1,490	149	97	124	34	25			
20	47	275	88	125	1,610	670	1,200	158	180	110	30	28			
21	53	161	84	140	1,430	530	940	143	146	92	37	27			
22	47	110	79	165	940	471	755	202	502	90	34	29			
23	42	84	76	140	890	411	630	206	3,280	80	34	24			
24	37	74	74	125	845	377	550	169	1,020	69	33	29			
25	31	66	92	110	608	361	478	146	510	67	34	25			
26	34	63	115	100	1,220	345	447	136	350	77	30	23			
27	34	61	160	95	2,070	345	422	116	268	87	28	27			
28	34	60	155	100	3,410	1,940	382	105	202	75	32	29			
29	47	62	125	246		1,260	361	105	238	121	30	32			
30	41	67	150	2,970		2,050	471	92	277	140	28	57			
31	30		125	5,690		2,860		85		100	27				
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....				1,142		53		26		36.8		0.094		0.11	
November.....				2,057		275		30		68.6		.176		.20	
December.....				4,678		428		74		151		.387		.45	
Calendar year 1938				179,713		5,280		26		492		1.26		17.15	
January.....				14,205		5,690		95		458		1.17		1.35	
February.....				60,953		5,950		608		2,177		5.58		5.81	
March.....				37,903		3,730		345		1,223		3.14		3.62	
April.....				32,351		2,210		361		1,078		2.76		3.08	
May.....				7,655		845		85		247		.633		.73	
June.....				9,222		3,280		65		307		.787		.88	
July.....				5,421		802		67		175		.449		.52	
August.....				1,345		75		27		43.4		.111		.13	
September.....				1,067		73		23		35.6		.091		.10	
Water year 1938-39				177,999		5,950		23		488		1.25		16.98	

Loyalhanna Creek at New Alexandria, Pa.

Location.- Wire-weight gage, lat. 40°23'40", long. 79°25'55", at highway bridge at New Alexandria, Westmoreland County, 1 3/4 miles below mouth of Crabtree Creek. Zero of gage is 917.26 feet above mean sea level (general adjustment of 1912).

Drainage area.- 265 square miles.

Records available.- October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1913 to July 1923, November 1925 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 16 years (1919-22, 1926-39), 445 second-feet.

Extremes.- Maximum discharge during water year 1937-38, 6,500 second-feet Oct. 28 (gage height, 9.8 feet, from graph based on gage readings), from rating curve extended on basis of slope-area and contracted-opening determination; minimum observed, 10 second-feet (revised) Sept. 5 (gage height, 1.92 feet); minimum daily discharge, 17 second-feet (revised) Oct. 3.

Maximum discharge during water year 1938-39, 5,120 second-feet Feb. 3 (gage height, 8.7 feet, from graph based on gage readings), from rating curve extended on basis of slope-area and contracted-opening determinations; minimum observed, 14 second-feet Sept. 11, 19, 25 (gage height, 1.95 feet).

1913-23, 1925-39: Maximum discharge, 31,000 second-feet Mar. 18, 1936 (gage height, 20.96 feet, from floodmark), from rating curve extended on basis of slope-area and contracted-opening determinations; minimum observed, 2.4 second-feet Oct. 3, 1927 (gage height, 1.46 feet).

Discharge, in second-feet, water year October 1937 to September 1938.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	19	546	340	914	452	331	614	239	157	87	82	58	
2	19	350	252	937	402	354	452	218	172	98	76	69	
3	17	286	202	757	531	420	402	186	183	71	53	44	
4	23	235	171	531	558	378	359	148	143	53	58	28	
5	58	231	227	427	452	471	313	148	123	56	53	22	
6	65	202	159	378	1,380	3,200	286	156	136	60	46	34	
7	47	171	105	427	2,220	1,410	378	141	107	46	243	69	
8	36	148	140	378	1,200	1,000	942	144	330	44	101	46	
9	23	156	125	359	937	757	1,800	133	123	46	84	42	
10	68	141	115	256	1,130	642	2,020	133	164	84	990	35	
11	36	119	110	269	846	531	1,410	159	321	64	2,010	46	
12	52	105	105	252	728	531	1,130	141	552	260	543	52	
13	44	227	100	243	642	531	876	112	635	82	227	278	
14	44	202	100	227	586	1,810	699	133	420	67	172	187	
15	36	194	105	194	504	3,690	586	282	312	51	146	117	
16	30	227	1,500	182	402	2,520	504	239	277	49	132	76	
17	26	222	3,520	227	359	1,780	427	198	187	46	104	53	
18	33	210	4,870	239	478	1,130	452	210	160	367	150	58	
19	47	186	2,480	218	642	937	1,050	568	143	453	84	46	
20	105	186	1,270	194	1,340	757	699	1,440	117	187	47	51	
21	78	175	876	302	1,000	642	586	1,940	104	136	62	53	
22	81	148	699	1,450	816	531	531	1,290	98	362	56	58	
23	227	126	642	937	670	504	452	880	114	183	58	62	
24	256	112	504	786	336	427	373	1,440	87	129	58	71	
25	163	105	478	1,200	102	369	340	945	71	82	58	53	
26	133	210	427	937	424	359	295	552	79	235	49	47	
27	202	340	378	642	427	345	269	470	129	157	29	44	
28	3,190	378	350	531	350	277	243	374	157	110	47	44	
29	4,320	478	322	504	286	340	269	87	117	46	46	46	
30	2,680	369	286	452	252	260	231	82	117	46	46	42	
31	1,520		320	670	642		194			58		47	
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				13,678		4,320		17		441		1.66	1.91
November.....				6,785		546		105		226		.853	.95
December.....				21,278		4,870		100		686		2.59	2.99
Calendar year 1937.....				206,663		11,000		10		566		2.14	28.98
January.....				16,020		1,450		182		517		1.95	2.25
February.....				19,914		2,220		102		711		2.68	2.79
March.....				27,814		3,690		252		897		3.38	3.90
April.....				19,088		2,020		243		636		2.40	2.68
May.....				13,713		1,940		112		442		1.67	1.92
June.....				5,770		635		71		192		.725	.81
July.....				3,957		453		44		128		.493	.56
August.....				5,957		2,010		29		192		.725	.84
September.....				1,901		278		22		63.4		.239	.27
Water year 1937-38.....				155,875		4,870		17		427		1.61	21.87

Loyalhanna Creek at New Alexandria, Pa.

(Continued)

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	39	84	129	1,380	1,620	1,020	1,080	76	1,060	39	19
2	37	35	98	71	1,640	1,140	1,410	760	82	432	44	24
3	35	35	110	172	4,380	852	950	580	93	260	29	15
4	39	29	264	210	3,100	700	700	490	169	181	40	19
5	34	35	296	252	1,410	852	610	432	140	173	34	26
6	37	39	194	227	1,080	1,690	760	350	98	158	37	26
7	40	51	157	202	1,780	1,210	1,020	310	87	104	35	29
8	42	40	143	191	1,550	885	820	280	104	117	71	24
9	37	34	126	175	1,340	760	760	280	236	71	49	23
10	35	40	136	164	1,760	610	918	378	189	95	49	22
11	39	40	117	143	1,970	550	610	260	104	67	39	19
12	39	37	129	136	1,140	1,120	1,020	223	93	82	44	20
13	35	42	243	129	1,020	1,280	852	189	71	69	37	27
14	40	53	164	115	790	918	790	193	90	71	31	24
15	60	58	104	105	1,470	820	1,210	173	62	67	35	27
16	40	44	110	125	1,080	760	1,280	173	82	49	22	24
17	32	34	123	110	852	640	2,120	154	67	60	31	24
18	37	44	129	100	820	432	1,410	136	87	42	39	24
19	44	76	64	92	760	340	1,140	140	90	71	32	17
20	44	191	126	86	820	378	852	129	104	71	29	24
21	29	104	110	100	730	340	610	114	110	58	26	24
22	24	82	93	115	640	300	550	129	123	53	29	19
23	49	69	71	105	550	275	460	133	335	47	26	20
24	46	66	98	90	550	265	405	110	173	46	26	19
25	27	62	87	82	378	246	335	76	123	42	26	17
26	35	60	93	76	1,010	223	350	87	101	22	24	19
27	46	60	157	72	1,480	205	340	87	82	106	17	22
28	40	61	123	70	1,690	640	280	76	101	58	19	17
29	39	66	187	150		432	275	98	189	53	17	22
30	39	74	194	2,830		788	378	90	214	95	24	19
31	39		157	3,440		1,340		67		62	17	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					1,198	60	24	38.6	0.146		0.17	
November.....					1,700	191	29	56.7	.214		.24	
December.....					4,287	296	64	138	.521		.60	
Calendar year 1938.....					121,319	3,690	22	332	1.25		17.03	
January.....					10,064	3,440	70	325	1.23		1.42	
February.....					37,170	4,380	378	1,328	5.01		5.22	
March.....					22,611	1,690	205	729	2.75		3.17	
April.....					24,235	2,120	275	808	3.05		3.40	
May.....					7,777	1,080	67	251	.947		1.09	
June.....					3,675	335	62	122	.460		.51	
July.....					3,942	1,060	22	127	.479		.55	
August.....					1,017	71	17	32.8	.124		.14	
September.....					655	29	15	21.8	.082		.09	
Water year 1938-39					118,331	4,380	15	324	1.22		16.60	

Monongahela River at Greensboro, Pa.

Location.— Water-stage recorder, lat. 39°47'15", long. 79°55'15", 750 feet above dam at lock 7, at Greensboro, Greene County, 2.2 miles below mouth of Dunkard Creek, and 4.3 miles below mouth of Cheat River. Zero of gage is 767.55 feet above mean sea level (general adjustment of 1912).

Drainage area.— 4,407 square miles.

Records available.— January to September 1939.

Extremes.— Maximum discharge during period, 125,000 second-feet Feb. 4 (gage height, 25.72 feet), from rating curve extended above 75,000 second-feet; minimum, 342 second-feet May 28 (gage height, 10.72 feet); minimum daily discharge, 623 second-feet Sept. 3.

Maximum stage known, 28.4 feet Mar. 18, 1936 (discharge not determined).

Remarks.— Records fair. Discharge for periods of recorder failure, Aug. 7, 9-12, computed on basis of records for station at Charleroi. Considerable regulation caused by power operations on Cheat River and from manipulations at Tygart Reservoir.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1				2,160	33,500	23,600	11,600	6,050	2,360	19,600	8,240	640	
2				1,910	32,500	19,600	9,760	6,440	3,480	9,600	7,020	640	
3				2,290	70,000	18,000	11,600	5,600	4,730	7,900	6,240	623	
4				3,270	93,000	13,400	9,310	5,160	11,600	3,470	3,800	640	
5				4,640	39,500	14,500	8,060	3,840	9,630	12,400	2,320	748	
6				4,810	32,500	30,600	9,380	2,080	4,430	11,000	2,110	2,180	
7				2,630	35,500	25,300	18,900	1,800	3,970	8,740	3,080	730	
8				882	34,500	21,600	13,600	2,840	3,500	11,300	3,360	1,520	
9				1,610	32,500	21,200	6,540	2,820	3,360	13,400	2,500	712	
10				2,860	32,500	14,100	9,160	2,480	2,440	8,400	1,800	730	
11				3,850	42,800	15,300	10,500	2,880	2,200	5,980	2,150	1,030	
12				3,870	36,700	13,400	18,600	2,080	2,080	4,310	1,750	1,550	
13				4,170	28,800	33,600	18,000	1,880	3,590	4,100	1,040	1,480	
14				900	22,800	27,100	13,800	1,280	2,920	4,360	980	1,660	
15				2,120	18,000	21,200	14,800	2,080	2,740	1,940	1,860	940	
16				2,860	20,000	20,800	52,300	2,350	2,460	1,530	1,150	920	
17				3,830	18,800	18,000	87,200	2,280	965	2,790	1,130	960	
18				3,580	15,100	10,700	45,500	2,180	766	1,770	2,460	1,000	
19				3,800	10,600	8,280	35,500	1,890	15,300	1,690	1,050	980	
20				5,310	12,700	9,500	31,600	1,000	24,400	2,030	1,030	960	
21				3,670	13,900	8,220	28,800	690	14,000	6,000	1,960	940	
22				8,960	13,400	6,510	22,800	1,960	9,240	12,600	1,280	1,600	
23				15,100	9,980	5,160	13,800	2,370	21,000	8,060	1,570	900	
24				16,400	8,420	3,890	10,200	3,350	15,600	8,130	1,640	900	
25				13,400	6,260	2,500	10,700	2,180	6,990	7,160	940	960	
26				10,200	8,130	2,260	6,910	2,050	6,100	7,370	802	920	
27				6,460	22,800	3,420	7,270	1,060	4,010	6,000	840	940	
28				3,640	24,400	6,880	8,690	1,000	7,040	5,540	1,640	940	
29				3,590		9,240	5,900	2,960	8,040	5,540	802	960	
30				28,400		9,600	3,820	1,090	13,700	7,180	1,540	1,220	
31				69,600		15,600		1,210		8,490	640		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....													
November.....													
December.....													
Calendar year 1938													
January.....				240,772		69,600		882		7,767		1.76	2.03
February.....				769,590		93,000		6,260		27,490		6.24	6.50
March.....				453,060		33,600		2,260		14,610		3.32	3.83
April.....				554,600		87,200		3,820		18,490		4.20	4.69
May.....				78,930		6,440		690		2,546		.578	.67
June.....				212,641		24,400		766		7,088		1.61	1.80
July.....				218,380		19,600		1,530		7,045		1.60	1.84
August.....				68,724		8,240		640		2,217		.503	.58
September.....				30,923		2,180		623		1,031		.234	.26
Water year 1938-39													

Monongahela River at Charleroi, Pa.

Location.— Water-stage recorder, lat. 40°08'30", long. 79°53'35", 1,100 feet above dam at lock 4, at Charleroi, Washington County, and half a mile below mouth of Maple Creek. Zero of gage is 735.33 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.— 5,213 square miles.

Records available.— March 1886 to March 1905, October 1933 to September 1939 in reports of U. S. Geological Survey; October 1933 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Extremes.— Maximum discharge during year, 120,000 second-feet Feb. 4 (gage height, 19.05 feet); minimum, 595 second-feet Sept. 3 (gage height, 2.46 feet); minimum daily discharge, 673 second-feet Sept. 3.

1886-1905, 1933-39: Maximum discharge, about 156,000 second-feet July 11, 1888 (gage height, 42.0 feet on lower gage at old lock downstream, or about 26.1 feet on present gage); minimum not determined.

Remarks.— Records good except those below 5,000 second-feet, which are fair. Regulation at low stages from operations at hydroelectric plant on Cheat River, at Tygart Reservoir, and at locks upstream. Part of discharge measurements furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,200	865	4,870	3,670	46,400	28,800	15,700	5,580	1,310	22,400	7,570	770
2	860	1,100	4,830	2,990	36,000	22,400	13,100	6,620	2,690	14,800	7,840	699
3	785	815	4,120	2,890	62,000	19,500	13,100	6,830	4,090	7,950	6,130	673
4	926	755	2,260	3,240	109,000	17,000	11,200	5,910	11,500	6,490	4,680	686
5	994	1,060	6,240	4,870	53,500	13,700	9,500	5,270	10,400	6,580	3,200	977
6	1,010	1,100	7,740	5,480	35,100	32,900	9,900	3,760	6,710	14,400	2,180	1,290
7	1,010	1,200	12,400	5,220	40,500	31,500	19,500	2,710	4,120	8,650	2,400	1,790
8	830	2,120	12,800	2,850	59,600	23,200	17,400	2,450	3,700	8,680	3,020	1,150
9	755	1,840	11,600	1,700	36,000	23,200	11,700	3,530	3,800	19,400	3,050	1,340
10	800	1,820	9,480	2,450	36,900	17,000	9,000	3,370	3,400	9,200	2,180	960
11	875	2,610	9,750	4,190	43,400	16,000	12,200	3,300	2,570	7,570	1,960	890
12	860	1,140	11,000	4,680	44,500	15,000	18,800	3,170	2,230	5,070	2,210	1,200
13	909	909	12,400	5,070	32,400	31,700	21,400	2,260	2,460	4,300	1,550	1,530
14	875	1,010	11,200	4,030	25,600	36,000	16,700	2,150	3,400	4,050	1,060	1,580
15	960	1,580	9,750	1,710	21,600	24,000	15,700	1,860	2,800	3,580	1,220	1,600
16	800	1,460	6,690	3,330	23,200	22,400	40,600	2,570	2,770	1,860	1,530	1,120
17	770	1,840	4,660	3,840	21,600	20,200	100,000	2,710	2,130	1,980	1,180	1,040
18	944	2,180	2,860	4,760	17,800	15,200	62,400	2,600	1,220	2,570	1,320	1,040
19	1,220	2,450	2,220	4,380	14,400	10,400	41,400	2,570	6,100	1,990	1,880	1,010
20	860	5,220	3,080	5,480	13,700	9,750	56,100	2,260	26,400	1,860	1,090	1,010
21	845	6,970	2,860	5,800	14,000	11,000	51,500	1,130	15,900	2,960	1,330	1,010
22	815	7,570	2,640	6,610	14,700	8,650	26,400	1,030	10,400	10,900	1,540	1,150
23	770	6,360	2,600	15,700	11,600	6,830	18,100	2,160	16,300	10,100	1,310	1,390
24	838	4,430	2,280	18,800	9,500	5,480	12,200	2,740	18,300	7,020	1,420	1,040
25	1,040	2,520	1,200	15,000	7,900	4,190	11,200	2,900	9,530	7,070	1,460	977
26	815	3,530	1,080	12,800	8,560	3,330	9,750	2,010	5,690	6,830	960	977
27	755	1,260	1,680	9,270	21,800	3,410	7,290	1,960	4,870	6,360	815	960
28	725	1,410	4,660	6,680	27,200	7,060	9,200	1,080	6,040	6,360	1,060	960
29	699	3,440	5,910	3,880		9,200	8,620	1,540	15,700	4,890	1,310	1,010
30	686	4,380	5,270	19,200		13,100	5,540	2,300	18,100	7,890	1,130	1,120
31	712		4,900	81,500		16,700		1,160		7,840	1,280	
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....				26,943		1,220	686	869	0.167		0.19	
November.....				74,944		7,570	755	2,498	.479		.53	
December.....				184,950		12,800	1,080	5,965	1.14		1.31	
Calendar year 1938				2,712,056		71,100	686	7,430	1.43		19.33	
January.....				271,870		81,300	1,700	8,770	1.68		1.94	
February.....				868,060		109,000	7,900	31,000	5.95		6.20	
March.....				518,800		36,000	3,330	16,740	3.21		3.70	
April.....				634,200		100,000	5,540	21,140	4.06		4.53	
May.....				91,490		6,830	1,030	2,951	.566		.65	
June.....				224,630		26,400	1,220	7,488	1.44		1.61	
July.....				231,600		22,400	1,860	7,471	1.43		1.65	
August.....				70,665		7,840	815	2,280	.437		.50	
September.....				32,949		1,790	673	1,098	.211		.24	
Water year 1938-39				3,231,081		109,000	673	8,852	1.70		23.05	

Monongahela River at Braddock, Pa.

Location.- Water-stage recorder, lat. 40°23'25", long. 79°51'20", 1,000 feet above dam at lock 2, at Braddock, Allegheny County, 1,000 feet below mouth of Turtle Creek, and 11.2 miles above confluence with Allegheny River. Zero of gage is 706.97 feet above mean sea level (general adjustment of 1912).

Drainage area.- 7,337 square miles.

Records available.- January to September 1939.

Extremes.- Maximum discharge during period, 147,000 second-feet Feb. 4 (gage height, 27.2 feet), from rating curve extended above 100,000 second-feet; minimum, 866 second-feet Sept. 28 (gage height, 12.09 feet).

Maximum stage known, 38.8 feet Mar. 18, 1936 (discharge not determined).

Remarks.- Records good except those below 5,000 second-feet, which are fair. Regulation owing to operations at hydroelectric plants on Deep Creek and Cheat River, at Tygart Reservoir, and at locks upstream.

Discharge, in second-feet, water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1				5,510	69,100	45,200	25,100	8,330	1,700	32,400	9,570	1,440	
2				4,670	45,200	35,200	21,700	11,400	2,560	26,000	9,510	1,140	
3				4,240	57,900	27,800	20,000	11,000	4,670	14,200	7,740	1,210	
4				4,450	133,000	23,800	18,400	10,000	10,400	11,400	6,700	1,260	
5				6,360	83,200	19,600	15,300	8,810	15,300	8,050	5,040	1,160	
6				8,810	46,200	34,600	13,800	7,460	11,400	17,200	3,700	1,140	
7				8,870	48,300	45,200	23,200	5,560	7,020	13,100	3,160	1,690	
8				6,200	51,500	32,400	26,900	4,630	6,100	11,000	4,280	1,600	
9				4,320	46,200	28,700	20,400	4,540	6,420	19,900	4,450	1,520	
10				3,820	48,300	24,200	14,600	5,040	5,850	13,400	4,030	1,520	
11				5,320	54,800	20,000	18,000	4,940	4,900	10,400	3,010	1,290	
12				6,360	62,800	20,400	23,000	4,670	3,820	7,850	3,160	1,260	
13				6,580	44,100	28,100	28,700	4,070	3,270	6,310	2,450	1,390	
14				6,580	34,300	46,200	24,200	3,420	4,110	5,510	2,010	1,520	
15				3,900	29,600	33,400	21,700	3,390	4,450	5,410	1,770	1,770	
16				3,780	33,400	29,600	37,100	3,500	4,280	3,700	2,130	1,520	
17				4,990	29,600	26,900	104,000	3,700	3,700	2,900	8,040	1,190	
18				6,000	25,100	22,100	88,000	3,700	2,620	3,600	1,950	1,440	
19				6,000	21,700	15,700	59,300	3,500	3,230	3,390	2,890	1,020	
20				5,850	18,000	12,800	46,200	3,550	24,900	3,230	2,010	998	
21				7,300	19,200	13,400	37,200	2,690	23,400	3,460	1,520	976	
22				6,700	20,000	12,000	31,400	2,390	14,900	8,680	1,500	1,040	
23				14,400	16,800	10,400	24,700	2,830	15,800	13,100	1,660	1,340	
24				21,500	14,200	8,750	16,800	3,540	24,200	9,700	1,550	1,290	
25				18,800	12,800	7,300	13,800	4,190	15,700	9,380	1,740	1,160	
26				15,700	12,400	5,900	15,500	3,390	9,120	8,690	1,660	1,040	
27				12,400	23,400	5,170	12,400	2,900	7,800	9,240	1,190	998	
28				8,930	34,300	8,260	12,000	2,560	8,140	8,270	1,210	932	
29				6,050		12,800	12,800	2,200	22,000	7,240	1,550	1,140	
30				14,200		17,200	10,400	3,050	26,000	9,310	1,520	1,360	
31				84,600		23,800		2,620		8,930	1,290		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....													
November.....													
December.....													
Calendar year 1938.....													
January.....				322,990	84,600	3,780		10,420	1.42			1.64	
February.....				1,135,400	133,000	12,400		40,550	5.53			5.76	
March.....				696,880	46,200	5,170		22,480	3.06			3.53	
April.....				836,400	104,000	10,400		27,880	3.80			4.24	
May.....				147,370	11,400	2,200		4,754	.648			.75	
June.....				297,760	26,000	1,700		9,925	1.35			1.51	
July.....				314,830	32,400	2,900		10,160	1.38			1.59	
August.....				97,490	9,570	1,190		3,145	.429			.49	
September.....				38,354	1,770	932		1,278	.174			.19	
Water year 1938-39													

South Fork of Tenmile Creek at Jefferson, Pa.

Location.- Water-stage recorder and masonry control, lat. 39°55'25", long. 80°04'25", at highway bridge 1 mile southwest of Jefferson, Greene County, and 3½ miles below mouth of Ruff Creek. Prior to Oct. 21, 1938, chain gage at same site and datum. Zero of gage is 852.54 feet above mean sea level (general adjustment of 1907).

Drainage area.- 180 square miles.

Records available.- October 1931 to September 1939.

Extremes.- Maximum discharge during year, 5,950 second-feet June 28 (gage height, 12.25 feet), from rating curve extended above 4,000 second-feet; minimum, 0.34 second-foot Oct. 11, Sept. 19 (gage height, 0.50 foot).

1931-39: Maximum discharge, 8,100 second-feet Nov. 4, 1936 (gage height, 13.8 feet, from graph based on gage readings), from rating curve extended above 4,000 second-feet; minimum observed, about 0.05 second-foot Sept. 3, 1938 (gage height, 0.38 foot).

Remarks.- Records good except those for period of ice effect, Jan. 27, 28 (computed on basis of gage heights, weather records, and records for nearby stations), and those for periods of recorder failure, Mar. 15-21, July 9-13, Aug. 7 (computed on basis of fragmentary gage-height record and records for nearby stations), all of which are fair. Gage read twice daily prior to Oct. 21.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	.56	.73	19.2	33	734	908	568	82	4.25	1,300	50	.90
2	.61	.73	25	30	655	481	584	68	4.80	495	30	.68
3	.51	.73	25	30	2,250	310	360	57	42	226	22	.56
4	.61	.73	102	29	1,320	224	240	50	778	145	19.8	.62
5	.45	1.10	88	28	665	579	184	44	99	377	15.2	1.10
6	.51	1.50	53	38	625	1,840	530	41	53	231	12.3	1.40
7	.51	4.25	36	44	1,560	769	834	38	33	113	10.6	1.70
8	.56	3.50	27	39	1,120	416	467	36	32	288	42	1.40
9	.45	2.75	23	33	908	500	341	35	222	600	141	.79
10	.45	2.45	26	30	1,300	202	473	51	90	190	52	.62
11	.34	2.75	25	28	1,310	170	485	47	66	95	32	.56
12	.40	2.30	25	28	636	361	837	36	44	75	22	.45
13	.45	2.05	29	23	404	1,120	549	30	29	60	15.2	.45
14	.68	1.90	27	26	290	676	376	26	22	51	13.3	.45
15	.56	1.70	23	24	1,310	454	525	25	22	40	18.6	.45
16	.56	1.40	17.6	23	882	328	1,970	22	17.6	29	14.8	.56
17	.62	1.30	15.6	23	522	244	2,670	20	14.0	22	11.6	.56
18	.73	1.50	13.7	25	434	187	1,070	18.0	12.0	23	11.3	.45
19	.64	2.45	12.6	29	311	148	698	16.0	569	39	7.4	.40
20	1.40	26	11.6	29	294	124	467	14.8	384	33	6.0	.62
21	.90	22	10.9	31	232	113	333	13.0	140	29	4.45	.68
22	.90	14.0	10.0	400	209	105	240	12.3	77	99	3.85	.79
23	1.20	11.6	8.9	331	164	90	180	11.6	181	53	3.30	.84
24	1.50	10.3	10.9	180	161	84	151	12.0	114	34	3.00	.79
25	1.40	9.4	14.0	118	154	77	130	14.4	66	28	2.45	.68
26	1.20	10.3	16.0	75	950	75	116	12.6	42	65	2.05	.51
27	1.10	9.2	167	58	918	102	113	10.0	30	70	1.90	.40
28	1.10	8.6	172	50	1,340	452	95	7.7	919	57	1.50	.40
29	.90	8.3	141	56		292	84	6.4	1,820	44	1.30	.62
30	.79	10.5	57	2,190		727	71	5.7	2,110	53	1.00	.84
31	.73		41	2,110		945		4.80		66	.90	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				23.32	1.50	0.34	0.752	0.0042	0.005			
November.....				176.02	26	.73	5.87	.033	.04			
December.....				1,273.0	172	8.9	41.1	.228	.26			
Calendar year 1938				56,567.34	2,810	0.1	155	.861	11.66			
January.....				6,189	2,190	23	200	1.11	1.28			
February.....				21,658	2,250	154	774	4.30	4.48			
March.....				12,903	1,840	75	416	2.31	2.66			
April.....				15,741	2,670	71	525	2.92	3.26			
May.....				867.30	82	4.80	28.0	.156	.18			
June.....				8,036.65	2,110	4.25	268	1.49	1.66			
July.....				5,030	1,300	22	162	.900	1.04			
August.....				572.80	141	.90	18.5	.103	.12			
September.....				21.27	1.70	.40	.709	.0039	.004			
Water year 1938-39				72,491.36	2,670	.34	199	1.11	14.99			

Casselman River at Markleton, Pa.

Location.- Chain gage, lat. 39°51'35", long. 79°13'40", at highway bridge at Markleton, Somerset County, 2 miles southwest of Casselman and 7 miles below mouth of Coxes Creek. Zero of gage is 1,655.29 feet above mean sea level (general adjustment of 1907).

Drainage area.- 382 square miles.

Records available.- August to September 1913, October 1920 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1913 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 19 years (1920-39), 614 second-feet.

Extremes.- Maximum discharge during year, 12,500 second-feet Feb. 3 (gage height, 8.7 feet, from graph based on gage readings); minimum observed, 14 second-feet Sept. 20, 27 (gage height, 1.35 feet).

1913-39: Maximum discharge, 35,800 second-feet Mar. 17, 1936 (gage height, 18.4 feet, from floodmark), from rating curve extended on basis of slope-area determination; minimum observed, 11 second-feet Aug. 13, 1930, July 23, 1936.

Remarks.- Records good except those for periods of ice effect, Nov. 25 to Dec. 3, Dec. 15 to Jan. 2, Jan. 15-28 (computed on basis of gage heights, weather records, and records for nearby stations), and those below 50 second-feet, all of which are fair. Gage read twice daily. Slight regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	21	50	70	1,840	4,000	1,400	1,660	96	1,200	155	24
2	23	20	45	90	1,350	1,980	1,700	1,140	206	660	112	24
3	22	21	50	135	7,300	1,400	1,240	862	451	484	93	28
4	20	20	265	522	6,440	1,140	950	740	1,000	384	168	50
5	20	23	548	1,080	2,560	2,370	820	660	504	700	151	69
6	36	31	346	838	1,750	3,660	1,160	550	275	516	96	93
7	53	40	276	584	2,390	1,970	1,740	484	193	339	81	69
8	37	40	200	428	1,900	1,350	1,190	451	159	384	280	43
9	24	32	178	335	2,300	1,140	995	420	228	301	166	31
10	23	27	167	315	2,740	950	1,240	390	170	251	101	26
11	21	23	249	335	4,790	820	1,090	362	138	215	98	23
12	18	23	204	267	2,430	858	1,240	317	107	170	72	20
13	20	23	228	232	1,640	1,770	1,040	539	118	136	63	24
14	23	24	135	142	1,460	1,300	950	585	261	282	59	23
15	26	24	100	120	2,710	1,640	1,140	420	185	193	59	26
16	24	30	94	150	2,560	1,580	2,200	328	128	121	52	25
17	26	27	82	140	1,460	1,140	5,310	317	98	101	80	23
18	22	24	73	125	1,520	950	3,340	280	96	174	48	22
19	18	40	68	120	1,350	862	2,190	237	492	317	43	17
20	23	92	76	140	1,460	780	1,640	242	660	178	48	16
21	26	112	64	200	1,300	700	1,240	237	420	134	48	16
22	31	68	58	280	1,090	622	1,090	223	266	240	46	42
23	36	46	55	360	820	516	905	206	772	365	37	26
24	30	37	53	500	780	484	740	185	521	198	34	19
25	26	34	50	400	622	451	660	159	312	280	34	18
26	22	32	52	320	680	390	622	144	223	170	65	16
27	24	30	60	290	1,270	362	660	148	181	128	46	18
28	21	30	54	290	3,900	812	585	141	625	112	35	18
29	22	35	49	550	862	622	134	1,630	121	121	28	22
30	21	50	46	2,750	1,480	955	118	1,000	506	24	24	151
31	22		54	3,950		2,060		107		237	23	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				786	53	18	25.4	0.066	0.08			
November.....				1,079	112	20	36.0	0.094	0.10			
December.....				4,049	548	45	131	0.343	0.40			
Calendar year 1938				145,418	6,220	18	398	1.04	14.14			
January.....				16,058	3,950	70	518	1.36	1.57			
February.....				62,412	7,300	622	2,229	5.84	6.08			
March.....				40,399	4,000	362	1,303	3.41	3.93			
April.....				40,654	5,310	585	1,355	3.65	3.96			
May.....				12,586	1,660	107	406	1.06	1.22			
June.....				11,515	1,630	96	394	1.01	1.13			
July.....				9,608	1,200	101	310	0.812	0.94			
August.....				2,405	280	24	77.6	0.203	0.23			
September.....				1,013	152	15	33.8	0.088	0.10			
Water year 1938-39				202,564	7,300	15	555	1.45	19.74			

Big Piney Run near Salisbury, Pa.

Location.- Water-stage recorder and concrete control, lat. 39°43'32", long. 79°02'57", an eighth of a mile above Little Piney Run, a quarter of a mile north of Maryland - Pennsylvania State line, and 2½ miles southeast of Salisbury, Somerset County.

Drainage area.- 24.5 square miles.

Records available.- June 1932 to September 1939.

Extremes.- Maximum discharge during year, 1,180 second-feet Jan. 31 (gage height, 5.28 feet), from rating curve extended above 321 second-feet; minimum, 0.18 second-foot Sept. 27, 28, (gage height, 1.00 foot).

1932-39: Maximum discharge, about 4,300 second-feet Apr. 26, 1937 (gage height, 7.6 feet), from rating curve extended on basis of slope-area determination; minimum, that of Sept. 27, 28, 1939.

Remarks.- Records good except those above 400 second-feet, those for period of backwater effect, Oct. 18 to Dec. 1, those for periods of ice effect, Jan. 15-18, 23-28, Jan. 30 to Feb. 1 (computed on basis of gage heights, weather records, and records for nearby stations), and those for period of missing gage record, June 3-15 (computed on basis of records for nearby stations), all of which are fair. Water supply for cities of Frostburg, Md., and Salisbury, Pa., diverted upstream not included in records except in last three columns of monthly table. Records furnished by U. S. Geological Survey, College Park, Md.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	.49	.22	5.1	2.9	100	192	78	62	3.8	55	6.8	1.1
2	.42	.22	3.5	3.1	82	122	76	57	5.5	38	6.0	3.7
3	.34	.20	3.1	4.2	322	88	61	52	9.0	27	5.3	.98
4	.27	.20	30	22	256	70	53	43	13	21	12	2.0
5	.27	.34	25	54	136	125	45	34	9.0	30	6.0	12
6	.42	1.4	27	67	98	165	70	30	7.0	19	3.8	2.9
7	.64	.71	19	50	102	179	74	26	6.0	14	3.8	1.6
8	.71	.49	14	39	88	85	67	22	5.0	11	5.5	1.3
9	.56	.42	13	30	104	68	59	20	5.0	9.7	4.8	.51
10	.42	.34	32	31	131	53	62	19	5.0	8.0	1.9	.46
11	.42	.27	24	29	198	44	52	16	3.5	6.6	1.9	.36
12	.42	.42	22	22	132	46	54	13	2.5	5.5	1.8	.32
13	.34	.26	17	13	101	62	48	22	3.5	5.0	1.8	.51
14	1.3	.49	12	16	90	74	46	27	5.0	10	1.4	.98
15	1.0	.49	7.3	14	169	110	52	19	3.5	5.5	.98	.76
16	.64	.34	6.2	12	142	110	145	17	2.8	3.8	1.1	.57
17	.42	.34	5.0	11	102	85	298	16	1.9	3.6	.98	.46
18	.26	.34	6.0	11	90	68	224	15	6.4	7.0	.98	.36
19	.23	2.9	4.5	11	85	56	146	14	22	8.9	2.6	.28
20	.65	5.2	3.7	10	106	47	101	12	16	4.8	2.6	.24
21	.64	2.0	3.6	12	93	38	79	11	10	4.8	1.2	.24
22	.42	1.5	3.2	34	70	32	67	11	8.4	9.0	.90	.24
23	.24	1.3	2.9	37	57	27	49	10	20	7.1	.69	.24
24	.52	.93	3.4	30	46	24	39	8.7	10	6.6	2.9	.24
25	.34	1.5	4.4	25	38	21	34	7.1	7.1	7.4	13	.21
26	.22	1.6	3.8	20	41	19	32	6.6	6.0	4.2	3.0	.21
27	.22	1.6	4.6	20	59	18	32	5.8	4.8	3.4	1.9	.18
28	.22	1.5	3.8	20	205	49	29	5.5	65	3.6	.98	.18
29	.23	1.6	7.0	21	20	38	32	5.3	62	15	.90	1.6
30	.24	2.5	5.0	90	67	67	43	4.0	59	18	.90	6.8
31	.24		4.2	150		82		3.8		11	.76	

Month	Observed				Diversions (Mean)	Adjusted for Diversions		
	Second-foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches
October.....	13.75	1.3	0.22	0.444	0.76	1.20	0.049	0.06
November.....	31.62	5.2	.20	1.05	.68	1.73	.071	.08
December.....	325.3	32	2.9	10.5	.59	11.1	.453	.52
Calendar year 1938.....	7,888.27	231	.20	21.6	.55	22.2	.906	12.28
January.....	911.2	150	2.9	29.4	.50	29.9	1.22	1.41
February.....	3,243	322	38	116	.13	116	4.73	4.92
March.....	2,264	192	18	73.0	.13	73.1	2.98	3.44
April.....	2,247	298	29	74.9	.13	75.0	3.06	3.41
May.....	614.8	62	3.8	19.8	.18	20.0	.816	.94
June.....	387.7	65	1.9	12.9	.35	13.3	.543	.61
July.....	383.5	55	3.4	12.4	.25	12.6	.514	.59
August.....	99.17	13	.69	3.20	.45	3.65	.149	.17
September.....	41.53	12	.18	1.38	.67	2.05	.084	.09
Water year 1938-39.....	10,562.57	322	.18	28.9	.40	29.3	1.20	16.24

Laurel Hill Creek at Ursina, Pa.

Location.- Water-stage recorder and masonry control, lat. 39°49'15", long. 79°19'15", 500 feet below bridge on State Highway 53, at Ursina, Somerset County, and 2.7 miles above mouth. Prior to July 18, 1939, chain gage with datum 6.20 feet lower on highway bridge 0.7 mile downstream. Zero of present gage is 1,335.26 feet above mean sea level (preliminary levels of 1935).

Drainage area.- 121 square miles.

Records available.- August to September 1913, October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; August 1913 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 23 years (1916-39), 275 second-feet.

Extremes.- Maximum discharge during year, 4,910 second-feet Feb. 3 (gage height, 7.58 feet, observed on crest, former site and datum); minimum, 5.3 second-feet Sept. 26-28 (gage height, 0.68 foot).

1913-39: Maximum discharge, 10,300 second-feet Mar. 17, 1936 (gage height, 10.28 feet, from floodmark, former site and datum), from rating curve extended on basis of slope-area determination; no flow Aug. 22, 1917, Feb. 15, 1919; minimum daily discharge observed, 1 second-foot Aug. 22, Sept. 1, 1917.

Remarks.- Records good except those for periods of ice effect, Nov. 26 to Dec. 3, Dec. 15 to Jan. 2, Jan. 13-29, which were computed on basis of gage heights, weather records, and records for nearby stations, and are fair. Gage read twice daily prior to July 18. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	10	30	48	885	1,230	490	640	49	520	36	9.0
2	13	9.5	25	60	790	675	780	460	208	324	29	8.4
3	12	9.5	28	90	3,520	520	550	375	454	238	26	7.4
4	11	10	199	239	2,320	435	435	324	952	183	34	8.4
5	9.0	12	254	353	990	580	390	254	342	194	25	14
6	11	14	172	342	675	1,030	460	238	234	206	20	29
7	11	17	120	315	1,070	745	580	218	148	130	20	17
8	12	14	96	238	745	550	324	180	134	120	119	13
9	12	12	88	176	815	460	410	202	162	114	78	10
10	9.5	12	88	180	1,010	400	520	155	99	102	46	9.5
11	8.0	12	90	148	1,820	302	435	127	80	90	39	8.4
12	8.5	12	80	130	955	309	520	114	57	65	28	5.4
13	7.5	14	141	96	710	710	410	120	81	55	24	9.5
14	9.5	17	96	80	520	490	385	152	255	75	21	10
15	9.5	18	70	72	885	460	610	111	134	65	19	11
16	12	14	52	84	850	435	1,030	93	96	45	17	10
17	9.0	13	47	78	580	370	1,820	90	78	38	16	8.4
18	9.5	12	44	70	520	333	1,150	78	100	89	15	7.4
19	8.5	19	40	66	490	288	920	75	328	109	14	6.4
20	11	38	47	64	520	238	610	75	580	59	14	5.9
21	11	42	42	75	490	214	435	63	390	47	14	5.9
22	12	26	38	110	435	186	360	53	273	51	14	5.9
23	10	20	36	210	405	162	324	42	742	46	13	5.9
24	11	24	35	170	370	148	288	34	435	41	12	5.9
25	10	18	33	155	279	141	242	30	279	44	12	5.6
26	10	16	33	140	246	127	234	30	222	27	11	5.3
27	9.5	15	39	130	333	120	214	134	148	21	11	5.3
28	10	15	34	140	971	176	176	105	378	23	10	5.3
29	10	18	31	450		141	172	61	338	89	10	9.0
30	10	29	32	1,310		415	295	49	435	58	9.5	20
31	11		40	1,470		640		49		44	9.5	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches		
October.....					320.0	13	7.5	10.3	0.085	0.10		
November.....					512.0	42	9.5	17.1	.141	.16		
December.....					2,200	254	25	71.0	.587	.68		
Calendar year 1938.....					71,006.0	2,070	7.5	195	1.61	21.84		
January.....					7,289	1,470	48	235	1.94	2.24		
February.....					24,199	3,520	246	864	7.14	7.44		
March.....					13,030	1,230	120	420	3.47	4.00		
April.....					15,569	1,820	172	519	4.29	4.79		
May.....					4,731	640	30	153	1.28	1.45		
June.....					8,211	952	49	274	2.26	2.52		
July.....					3,312	520	21	107	.884	1.02		
August.....					766.0	119	9.5	24.7	.204	.24		
September.....					285	29	5.3	9.51	.079	.09		
Water year 1938-39.....					80,424.2	3,520	5.3	220	1.82	24.73		

Turtle Creek at Trafford, Pa.

Location.- Water-stage recorder, lat. 40°23'15", long. 79°45'55", at Trafford, Westmoreland County, 500 feet above mouth of Brush Creek and 5.8 miles above confluence with Monongahela River. From Oct. 1 to Nov. 12, 1938, staff gage at same site and datum. Prior to Oct. 1, 1938, chain gage with datum 15.19 feet higher at highway bridge 1 mile upstream. Zero of present gage is 765.08 feet above mean sea level (general adjustment of 1907).

Drainage area.- 55.9 square miles.

Records available.- October 1920 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; July 1914 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 19 years (1920-39), 78.8 second-feet.

Extremes.- Maximum discharge during year, 1,360 second-feet Jan. 30 (gage height, 5.37 feet); minimum, 0.1 second-foot Sept. 16, 17, 28.

1914-39: Maximum discharge, 4,420 second-feet Mar. 15, 1933 (gage height, 8.5 feet, at former site, from graph based on gage readings), from rating curve extended above 500 second-feet; minimum, 0.1 second-foot Oct. 6, 7, 1922, Sept. 16, 17, 28, 1939.

Remarks.- Records good except those below 10 second-feet and those for periods of ice effect, Dec. 28-31, Jan. 14-29 (computed on basis of gage heights, weather records, one discharge measurement, and records for nearby stations), all of which are fair.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	1.7	3.00	17.8	16.5	226	266	226	72	10.6	99	18.8	.50	
2	1.6	2.50	20	18.0	340	175	218	60	11.7	34	13.4	.40	
3	1.6	3.20	21	17.5	617	129	155	53	18.6	22	18.9	6.5	
4	1.6	2.65	85	17.5	288	103	116	45	18.2	16.0	21	2.60	
5	1.6	3.20	41	19.0	183	128	94	41	10.8	14.4	11.7	7.0	
6	1.6	5.1	32	20	154	148	168	38	8.5	12.7	9.1	1.68	
7	1.7	4.85	27	16.5	360	114	186	35	7.2	10.5	8.6	1.02	
8	1.9	7.2	24	15.5	303	90	140	32	34	12.9	20	.74	
9	2.1	5.7	24	14.4	300	81	118	32	34	13.2	11.4	.50	
10	1.6	4.40	27	15.2	544	67	127	44	15.5	12.2	8.8	.40	
11	1.9	5.5	23	14.1	400	73	118	32	16.6	9.0	6.0	.50	
12	1.9	6.0	25	13.0	215	116	124	27	9.9	6.4	4.00	.60	
13	3.1	4.70	21	6.5	152	160	109	25	9.0	5.3	2.70	1.30	
14	4.1	9.9	18.6	8.0	120	127	109	24	10.8	6.5	6.4	1.02	
15	3.9	6.3	14.7	7.7	408	109	206	22	8.5	4.55	3.10	.60	
16	2.3	4.85	12.2	7.3	242	92	264	21	6.9	3.20	1.90	.20	
17	2.3	4.65	15.2	7.2	173	72	382	20	6.2	2.65	2.50	.20	
18	1.9	8.4	12.7	7.0	136	65	237	18.5	7.1	5.0	3.65	.74	
19	1.7	40	10.2	6.8	141	57	170	17.5	18.2	7.4	1.70	.88	
20	7.0	34	10.2	6.7	136	51	131	17.5	16.1	4.20	.94	1.02	
21	8.2	19.2	11.4	8.0	112	43	105	17.5	10.7	3.35	.74	1.30	
22	4.1	14.4	10.0	12	109	42	83	25	11.0	2.85	.74	1.49	
23	3.1	12.4	9.3	31	111	38	67	21	32	2.50	.60	.88	
24	2.6	7.2	12.4	29	81	36	59	18.5	13.4	2.05	.50	.40	
25	2.75	9.1	11.7	16	75	34	53	14.8	9.3	2.05	.50	.50	
26	2.85	11.7	10.2	10	262	32	52	13.4	7.2	2.10	.40	.20	
27	2.85	9.9	39	9.0	273	45	53	12.7	6.0	19.5	.30	.88	
28	3.35	9.6	27	8.8	382	141	45	13.0	24	5.8	.40	.30	
29	3.35	9.0	20	10		85	41	14.3	14.6	130	.50	1.87	
30	3.35	11.8	18	705		376	74	12.0	93	75	.50	9.5	
31	3.70		16	582		322		9.3		37	.50		
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				87.30		8.2		1.6		2.82		0.050	0.06
November.....				280.40		40		2.50		9.35		.167	.19
December.....				666.6		85		9.3		21.5		.385	.44
Calendar year 1938				20,078.50		815		.4		55.0		.984	13.60
January.....				1,675.2		705		6.5		54.0		.966	1.11
February.....				6,843		617		75		244		4.36	4.54
March.....				3,417		376		32		110		1.97	2.27
April.....				4,028		382		41		134		2.40	2.68
May.....				848.0		72		9.3		27.4		.490	.56
June.....				499.6		93		6.0		16.7		.299	.33
July.....				583.30		130		2.05		18.8		.336	.39
August.....				180.27		20		.50		5.82		.104	.12
September.....				45.72		9.5		.20		1.52		.027	.03
Water year 1938 -39.....				19,154.39		705		.20		52.5		.939	12.74

Beaver River at Wampum, Pa.

Location.— Water-stage recorder, lat. 40°53'15", long. 80°20'05", at highway bridge at Wampum, Lawrence County, 2 3/4 miles above mouth of Connoquenessing Creek. Zero of gage is 736.24 feet above mean sea level (Pennsylvania Railroad benchmark). Prior to Nov. 16, 1938, staff gage at same site and datum.

Drainage area.— 2,235 square miles.

Records available.— June to September 1914, August 1932 to September 1939.

Extremes.— Maximum discharge during year, 26,700 second-feet Mar. 13 (gage height, 14.90 feet); minimum, 341 second-feet Sept. 4, 25 (gage height, 2.36 feet).

1914, 1932-39: Maximum discharge, 48,000 second-feet Jan. 25, 1937 (gage height, 21.44 feet, from floodmark), from rating curve extended on basis of contracted-opening determination; minimum, 74 second-feet July 30, 1933 (gage height, 1.70 feet); minimum daily discharge, 97 second-feet July 22, Aug. 23, 1933.

Maximum stage known, 29.9 feet, from floodmark, Mar. 26, 1913 (discharge, about 87,000 second-feet).

Remarks.— Records good except those for periods of ice effect, Dec. 27 to Jan. 2, Jan. 16-28, which were computed on basis of gage heights, weather records, and records for stations upstream, and are fair. Gage read twice daily prior to Nov. 18. Regulation from storage in Milton and Pymatuning Reservoirs and from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	419	442	854	530	11,300	14,600	7,810	1,740	370	554	2,210	360
2	386	431	1,030	600	9,740	12,200	6,020	1,650	391	470	1,410	365
3	375	431	1,150	730	11,500	8,230	4,730	1,400	419	429	889	355
4	419	419	1,820	1,090	10,200	6,210	3,550	1,180	1,670	453	933	370
5	396	492	2,350	1,890	7,000	7,240	2,860	1,050	976	537	1,280	435
6	419	492	2,080	3,210	5,450	8,650	3,320	911	664	602	806	476
7	442	480	1,740	3,080	6,210	6,210	4,210	817	539	581	533	429
8	408	532	1,580	2,490	6,210	4,300	3,440	730	729	554	502	376
9	442	634	1,460	2,080	5,640	3,960	2,780	799	1,010	581	533	360
10	442	588	1,380	1,950	6,320	3,550	2,780	902	835	561	561	396
11	425	553	1,300	1,820	9,080	3,080	4,540	844	680	554	502	386
12	408	505	1,180	1,620	7,600	13,600	8,020	799	626	483	464	386
13	396	454	1,100	1,400	5,270	24,600	6,400	697	634	441	691	435
14	492	626	960	1,230	4,380	17,000	4,640	618	713	520	624	429
15	442	680	844	1,070	6,890	9,080	7,050	567	596	562	554	412
16	431	603	721	980	6,400	6,800	8,020	546	454	441	489	402
17	402	525	672	870	4,730	5,270	6,400	532	425	424	435	402
18	408	880	713	800	4,120	4,120	7,680	499	480	424	424	370
19	380	2,500	649	750	7,980	3,390	11,800	486	532	453	407	370
20	467	2,630	626	700	16,600	3,160	9,640	499	505	391	381	376
21	486	2,140	641	780	16,600	2,860	6,020	580	518	376	376	381
22	431	1,510	618	860	11,100	2,560	4,910	603	1,020	376	396	365
23	431	1,150	581	700	6,800	2,350	4,640	738	980	360	391	360
24	442	990	603	600	5,270	2,280	4,040	790	870	360	386	360
25	467	854	611	570	6,020	2,020	3,310	664	661	429	376	350
26	442	746	603	550	4,300	1,950	2,780	581	554	446	376	370
27	460	713	570	540	6,400	1,740	2,350	518	502	1,280	360	768
28	460	664	540	550	10,100	2,560	1,650	454	547	962	346	662
29	460	656	520	960		2,560	1,230	442	520	1,360	370	613
30	425	799	500	5,810		3,650	1,280	396	527	1,680	370	669
31	425		500	13,400		8,650		366		2,490	366	
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					13,528	492	375	430	0.192		0.22	
November.....					25,199	2,630	419	837	.374		.42	
December.....					30,496	2,350	500	984	.440		.51	
Calendar year 1938					838,352	22,600	316	2,297	1.03		13.95	
January.....					54,190	13,400	530	1,748	.782		.90	
February.....					219,210	16,600	4,120	7,829	3.50		3.64	
March.....					198,430	24,600	1,740	6,401	2.86		3.30	
April.....					147,900	11,800	1,230	4,930	2.21		2.47	
May.....					23,397	1,740	365	755	.338		.59	
June.....					19,947	1,670	370	655	.298		.53	
July.....					20,134	2,490	360	649	.290		.53	
August.....					18,740	2,210	346	605	.271		.51	
September.....					12,978	862	350	433	.194		.22	
Water year 1938-39					783,869	24,600	346	2,148	.961		13.04	

Pymatuning Reservoir at Pymatuning Dam, Pa.

Location.— Water-stage recorder, lat. 41°30'00", long. 80°27'35", in gatehouse at Pymatuning Dam, Crawford County, 1 3/4 miles northwest of Jamestown. Zero of gage is at mean sea level (general adjustment of 1907).

Drainage area.— 158 square miles.

Records available.— October 1933 to September 1939.

Extremes.— Maximum water-surface elevation during year, 1,008.12 feet Apr. 28; minimum, 1,004.72 feet Sept. 29.

1933-39: Maximum water-surface elevation, 1,009.16 feet June 21, 1937; minimum, 975.70 feet Oct. 15, 16, 19, 1933.

Remarks.— Records excellent. Reservoir completed in 1933. Gates closed on upper basin for storage Dec. 5, 1933. All regulating gates closed Jan. 23, 1934. Elevations Oct. 1-7 are mean of twice-daily gage readings. Reservoir used to regulate flow in Shenango River. Elevation of spillway is 1,008.0 feet. Elevation of sill of outlet gate is 975.3 feet. Total capacity of reservoir is 8,640,000,000 cubic feet.

Elevation, in feet, for the water year October 1938 to September 1939

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.40	5.80	5.98	6.13	6.31	6.74	6.78	8.02	7.64	7.37	6.64	5.67
2	6.57	5.78	5.95	6.12	6.34	6.80	6.84	8.01	7.60	7.35	6.61	5.63
3	6.84	5.75	5.92	6.13	6.42	6.89	6.89	7.96	7.59	7.28	6.59	5.58
4	6.80	5.68	6.08	6.16	6.42	6.75	6.89	7.91	7.74	7.24	6.63	5.52
5	6.27	5.66	6.14	6.25	6.36	6.74	6.81	7.89	7.69	7.30	6.57	5.61
6	6.32	5.76	6.20	6.34	6.30	6.70	6.90	7.89	7.68	7.30	6.54	5.52
7	6.26	5.71	6.21	6.35	6.28	6.69	6.84	7.87	7.64	7.27	6.51	5.48
8	6.17	5.68	6.23	6.35	6.24	6.61	6.80	7.87	7.67	7.27	6.44	5.50
9	6.18	5.70	6.27	6.32	6.26	6.59	6.85	7.88	7.70	7.26	6.48	5.44
10	6.14	5.70	6.28	6.30	6.30	6.57	6.85	7.87	7.65	7.24	6.47	5.42
11	6.12	5.67	6.24	6.30	6.45	6.51	6.98	7.91	7.60	7.16	6.41	5.37
12	6.09	5.67	6.26	6.29	6.42	6.67	7.04	7.88	7.60	7.12	6.35	5.31
13	6.06	5.68	6.19	6.25	6.36	6.88	7.10	7.85	7.63	7.03	6.34	5.29
14	6.08	5.70	6.19	6.28	6.31	6.83	7.09	7.81	7.62	7.12	6.34	5.24
15	6.06	5.70	6.21	6.22	6.31	6.78	7.35	7.75	7.56	7.05	6.30	5.23
16	6.06	5.62	6.18	6.19	6.26	6.80	7.42	7.76	7.56	6.99	6.27	5.22
17	6.04	5.64	6.16	6.17	6.18	6.78	7.40	7.77	7.56	6.95	6.24	5.26
18	6.02	5.69	6.15	6.13	6.13	6.76	7.71	7.78	7.52	6.90	6.19	5.15
19	6.00	5.84	6.13	6.11	6.18	6.73	7.86	7.70	7.49	6.88	6.14	5.06
20	6.00	5.84	6.12	6.08	6.49	6.67	7.96	7.70	7.52	6.84	6.10	5.07
21	5.97	5.84	6.12	6.05	6.60	6.64	7.93	7.76	7.49	6.75	6.05	5.05
22	5.93	5.88	6.13	6.04	6.59	6.61	8.00	7.81	7.43	6.71	6.03	4.97
23	5.90	5.96	6.12	6.04	6.50	6.56	8.00	7.81	7.57	6.69	6.00	4.92
24	5.91	5.94	6.12	6.03	6.48	6.54	7.98	7.79	7.54	6.67	5.98	4.90
25	5.88	5.92	6.12	6.08	6.45	6.50	8.01	7.78	7.54	6.65	5.96	4.86
26	5.81	5.88	6.12	6.02	6.42	6.49	8.03	7.75	7.50	6.61	5.92	4.89
27	5.84	5.85	6.13	6.01	6.39	6.66	8.05	7.70	7.46	6.66	5.87	4.87
28	5.81	5.90	6.14	5.99	6.45	6.55	8.07	7.69	7.41	6.63	5.82	4.85
29	5.88	5.90	6.14	6.02		6.56	8.03	7.72	7.38	6.63	5.79	4.78
30	5.87	5.96	6.14	6.13		6.63	8.02	7.67	7.39	6.62	5.75	4.90
31	5.83		6.13	6.26		6.77		7.65		6.68	5.71	

Note.— Add 1,000 feet to obtain elevations above sea level.

Monthly elevation and contents, water year October 1938 to September 1939

Date	Mean elevation (feet)	Contents (million cubic feet)	Monthly gain or loss in storage (equivalent mean second-feet)	Monthly gain or loss in storage (equivalent mean second-feet)
Sept. 30.....	1,006.43	7,203		
Oct. 31.....	1,005.83	6,845	-358	-134
Nov. 30.....	1,005.96	6,964	+119	+ 45.9
Dec. 31.....	1,006.13	7,024	+ 60	+ 22.4
Calendar year 1938.....			-119	- 3.8
Jan. 31.....	1,006.26	7,143	+119	+ 44.4
Feb. 28.....	1,006.45	7,203	+ 60	+ 24.8
Mar. 31.....	1,006.77	7,446	+243	+ 90.7
Apr. 30.....	1,008.02	8,191	+745	+287
May 31.....	1,007.65	7,940	-251	- 93.7
June 30.....	1,007.39	7,815	-125	- 48.2
July 31.....	1,006.68	7,385	-430	-161
Aug. 31.....	1,005.71	6,786	-599	-224
Sept. 30.....	1,004.90	6,320	-466	-180
Water year 1938-39.....			-883	- 28.0

Shenango River at Pymatuning Dam, Pa.

Location.- Water-stage recorder and concrete control, lat. 41°29'55", long. 80°27'30", 500 feet below mouth of Sugar Run, 550 feet below Pymatuning Dam, Crawford County, and 1½ miles northwest of Jamestown. Zero of gage is 970.00 feet above mean sea level (general adjustment of 1907).

Drainage area.- 167 square miles.

Records available.- June 1934 to September 1939.

Extremes.- Maximum discharge during year, 768 second-feet Feb. 28 (gage height, 6.67 feet); minimum, 1.2 second-feet June 14 (gage height, 3.50 feet); minimum daily discharge, 2.6 second-feet Nov. 24, 25.

1934-39: Maximum discharge, 1,910 second-feet Sept. 4, 1937 (gage height, 9.2 feet, from extension of recorder graph), from rating curve extended above 700 second-feet; minimum, 0.1 second-foot June 30 to July 3, 1934.

Remarks.- Records excellent except those for periods of recorder failure, Nov. 27, 28, Dec. 8-10, 12, 18-21, which were computed on basis of twice-daily readings and records for Pymatuning Reservoir and Sugar Run, and are good. Regulation from storage in Pymatuning Reservoir. Adjustment for storage in reservoir not included in records except in last three columns of monthly table. No adjustments made for losses by evaporation and seepage. Figures with minus sign indicate that evaporation and seepage from reservoir exceeded natural flow.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	122	92	57	99	329	228	185	160	104	117	62	174
2	122	92	59	99	338	498	181	156	125	143	99	174
3	122	92	68	106	461	600	174	156	120	153	109	174
4	122	92	84	128	630	615	174	122	28	160	88	174
5	122	92	65	164	630	630	167	99	72	114	86	140
6	122	92	62	167	630	630	178	94	109	113	111	125
7	234	92	75	242	644	615	178	94	122	143	143	140
8	189	92	92	302	644	615	170	97	81	153	160	174
9	128	67	116	302	644	511	170	79	52	153	153	174
10	128	48	156	302	610	324	170	73	81	153	150	174
11	128	47	153	302	530	324	175	70	102	153	153	174
12	128	79	150	297	630	479	33	68	104	164	156	174
13	128	99	146	297	615	376	36	68	61	164	156	174
14	128	72	146	297	600	343	42	68	38	164	156	174
15	111	52	146	297	615	334	73	68	86	164	156	174
16	99	52	146	297	615	334	23	68	111	164	156	174
17	99	68	146	297	615	329	17	67	125	164	156	174
18	81	34	146	297	424	329	117	67	125	164	156	174
19	88	27	146	297	443	324	32	65	125	164	156	174
20	98	12.0	104	297	423	324	120	65	125	164	156	174
21	104	5.2	99	206	470	324	164	65	125	164	156	174
22	104	3.3	99	160	630	324	160	51	125	164	156	174
23	104	2.9	99	164	630	324	166	52	125	164	167	174
24	104	2.6	99	164	615	324	156	62	134	164	170	174
25	97	2.6	99	156	615	216	156	62	140	164	170	174
26	92	2.9	99	150	630	164	156	67	140	164	174	174
27	92	2.8	99	156	644	189	156	77	140	107	174	174
28	92	28	99	156	540	178	153	77	140	124	174	174
29	92	57	99	156		170	153	81	130	119	174	174
30	92	57	99	220		234	156	90	73	102	174	174
31	92		99	316		208		97		78	174	
Month			Observed				Gain or loss in Storage (equivalent mean)	Adjusted for storage				
			Second- foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches		
October.....			3,564	234	81	115	-134	-19	-0.114	-0.13		
November.....			1,557.3	99	2.6	51.9	+ 45.9	97.8	.586	.65		
December.....			3,352	156	57	108	+ 22.4	130	.778	.90		
Calendar year 1938			58,696.2	697	1.6	161	- 3.8	157	0.940	12.77		
January.....			6,890	316	99	222	+ 44.4	266	1.59	1.83		
February.....			15,844	644	329	566	+ 24.8	591	3.54	3.69		
March.....			11,417	630	164	368	+ 90.7	459	2.75	3.17		
April.....			3,981	185	17	133	+287	420	2.51	2.80		
May.....			2,585	160	51	83.4	- 93.7	-10.3	-.062	-.07		
June.....			3,168	140	28	106	- 48.2	57.8	-.344	-.39		
July.....			4,545	164	78	147	-161	-14	-.084	-.10		
August.....			4,581	174	62	148	-224	-76	-.455	-.52		
September.....			5,103	174	125	170	-180	-10	-.060	-.07		
Water year 1938-39			66,587.3	644	2.6	182	- 28.0	154	0.922	12.54		

Shenango River at Sharpsville, Pa.

Location.- Water-stage recorder, lat. 41°16'00", long. 80°28'20", 700 feet above Erie Railroad bridge at Sharpsville, Mercer County, 3 miles below mouth of Pymatuning Creek. Zero of gage is 866.89 feet above mean sea level (general adjustment of 1907).

Drainage area.- 588 square miles.

Records available.- March 1938 to September 1939.

Extremes.- Maximum discharge during year, 4,570 second-feet Feb. 21 (gage height, 7.03 feet); minimum, 106 second-feet Nov. 13.

1938-39: Maximum discharge, 6,330 second-feet Apr. 10, 1938 (gage height, 8.00 feet); minimum, that of Nov. 13, 1938.

Maximum stage known, about 14.6 feet, from profiles of Pymatuning surveys, Mar. 26, 1913 (discharge not determined).

Remarks.- Records good except those for periods of ice effect, Dec. 27 to Jan. 2, Jan. 15-28, Feb. 17, 18, 24-26, which were computed on basis of gage heights, weather records, and records for nearby stations. Regulation from storage in Pymatuning Reservoir and from power operations upstream. Adjustment for effect of storage not included in records except in last three columns of monthly table; no adjustments made for evaporation and seepage from reservoir. Figures with minus sign indicate that evaporation and seepage from reservoir exceeded natural flow.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	143	137	313	200	2,640	4,050	1,760	494	174	168	270	190
2	162	137	384	240	2,420	2,870	1,460	451	181	168	181	190
3	162	137	434	301	3,180	2,260	1,200	393	197	178	159	190
4	162	131	926	588	2,640	1,820	940	355	296	181	520	200
5	162	131	980	1,120	2,200	1,980	674	306	222	214	276	283
6	162	143	708	1,570	1,710	1,880	762	265	208	187	187	208
7	165	146	618	1,220	1,930	1,490	1,080	253	233	171	178	171
8	303	149	582	1,030	1,980	1,220	840	245	278	197	187	174
9	238	179	527	930	2,150	1,130	699	245	257	204	218	197
10	176	165	508	850	2,370	910	753	306	225	187	208	204
11	172	126	508	762	3,060	717	1,690	265	253	178	197	197
12	168	108	451	658	2,260	2,060	2,040	237	245	174	194	200
13	176	134	410	575	1,820	3,790	1,540	214	222	178	200	211
14	186	209	366	494	1,600	2,830	1,570	200	200	197	214	204
15	179	186	306	450	1,820	1,930	2,100	190	145	184	204	204
16	168	140	278	420	1,660	1,480	2,040	187	174	181	200	200
17	149	120	310	400	1,300	1,170	1,460	187	187	181	197	204
18	143	246	278	380	1,150	860	1,940	181	194	181	194	197
19	140	751	270	370	2,260	650	2,420	171	197	181	187	197
20	131	924	274	360	4,310	634	1,880	174	204	178	187	197
21	149	618	245	390	4,050	603	1,520	194	204	174	187	197
22	149	427	218	380	2,540	589	1,180	282	187	171	184	197
23	152	328	214	340	1,880	582	940	249	197	171	181	194
24	155	264	233	320	1,500	575	682	229	190	171	187	194
25	162	221	233	310	1,200	575	527	214	190	171	194	194
26	152	190	238	300	1,100	482	469	190	194	218	194	197
27	149	193	210	300	1,710	681	433	174	190	398	194	260
28	152	176	200	290	2,820	990	398	174	181	187	194	252
29	149	193	200	371		726	371	174	178	197	194	233
30	146	274	190	1,520		1,100	382	168	204	274	190	233
31	146		190	3,180		2,420		174		345	190	
Month			Observed				Gain or Loss in Storage (equivalent mean)	Adjusted for storage*				
			Second- foot-days	Maximum	Minimum	Mean		Mean	Per square mile	Run-off in inches		
October.....			5,108	303	131	165	-134	31	0.053	0.06		
November.....			7,285	924	108	243	+ 45.9	289	.491	.55		
December.....			11,802	980	190	381	+ 22.4	403	.685	.79		
Calendar year 1938												
January.....			20,619	3,180	200	665	+ 44.4	709	1.21	1.40		
February.....			61,260	4,310	1,100	2,188	+ 24.8	2,213	3.76	3.92		
March.....			45,254	4,060	482	1,460	+ 90.7	1,551	2.64	3.04		
April.....			35,750	2,420	371	1,192	+287	1,479	2.52	2.81		
May.....			7,541	494	168	243	- 93.7	149	.253	.29		
June.....			6,207	296	145	207	- 48.2	159	.270	.30		
July.....			6,145	398	168	198	-161	37	.063	.07		
August.....			6,447	520	159	208	-224	-16	-.027	-.03		
September.....			6,169	283	171	206	-180	26	.044	.05		
Water year 1938-39			29,585	4,310	108	602	- 27.1	575	.978	13.25		

Sugar Run at Pymatuning Dam, Pa.

Location.- Water-stage recorder and concrete control, lat. 41°29'50", long. 80°27'55", at highway bridge at Pymatuning Dam, Crawford County, a quarter of a mile above mouth and 1 3/4 miles northwest of Jamestown. Zero of gage is 984.58 feet above mean sea level (general adjustment of 1907). Prior to Oct. 17, 1938, staff gage at same site and datum.

Drainage area.- 9.34 square miles.

Records available.- March 1934 to September 1939.

Extremes.- Maximum discharge during year, 290 second-feet Feb. 28 (gage height, 2.70 feet); no flow July 17-25, Aug. 20 to Sept. 4, Sept. 19-26.

1934-39: Maximum discharge, 1,820 second-feet Sept. 4, 1937 (gage height, 6.80 feet), from rating curve extended above 300 second-feet; no flow at times.

Remarks.- Records good except those for periods of ice effect, Nov. 25-29, Dec. 15 to Jan. 1, Jan. 14-28, Feb. 16, 17, 22-25, Mar. 8-11, which were computed on basis of gage heights, weather records, and records for nearby stations. Discharge for period of recorder failure, Mar. 12-17, computed on basis of twice-daily gage readings.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.17	0.30	6.1	2.0	32	61	22	7.0	0.20	0.77	0.34	0
2	.17	.25	7.2	4.50	41	17.0	18.2	4.10	.22	.25	.15	0
3	.15	.25	15.0	13.0	68	12.0	10.6	3.00	.72	.12	14.4	0
4	.15	.22	31	35	20	10.2	7.5	2.40	2.95	.07	27	0
5	.12	.80	11.6	38	15.2	16.1	6.2	2.00	.81	.82	3.00	.04
6	.25	1.08	9.3	23	8.8	15.9	17.6	1.76	.23	.98	.69	.15
7	.56	.63	8.6	10.7	32	8.8	17.3	1.52	.32	.30	.30	.08
8	.34	.87	6.2	7.2	36	5.8	9.9	1.40	2.65	.46	.20	.03
9	.25	2.45	5.3	5.5	30	6.8	9.3	2.60	1.34	.34	.58	.02
10	.22	1.29	6.2	6.0	80	6.0	11.2	6.3	.71	.15	.35	.02
11	.22	.97	4.90	6.2	36	5.4	88	2.95	1.33	.07	.17	.02
12	.20	.71	4.10	4.50	14.0	132	33	1.76	.71	.07	.08	.02
13	.25	1.08	3.10	3.00	8.2	50	36	1.40	.43	.02	.08	.03
14	.43	2.15	2.30	2.6	8.0	17.6	40	1.08	.97	.02	.10	.08
15	.43	1.30	1.5	2.1	12.8	12.8	73	.97	.56	.01	.10	.03
16	.30	.86	1.1	1.8	7.0	9.3	23	.97	.30	.01	.05	.02
17	.25	.71	.9	1.6	5.8	6.5	17.2	.97	.20	0	.03	.02
18	.25	6.4	.8	1.5	9.1	5.5	116	.78	.15	0	.02	.01
19	.25	25	.7	1.4	108	4.70	32	.56	.20	0	.01	0
20	.25	11.8	.6	1.3	98	4.90	22	.63	.30	0	0	0
21	.48	5.2	.6	1.2	22	4.35	13.6	.97	.22	0	0	0
22	.48	3.15	.5	1.2	11	4.50	10.6	2.00	.20	0	0	0
23	.34	2.50	.5	1.1	7.6	4.10	8.3	1.52	.25	0	0	0
24	.39	2.40	.5	1.1	6.0	4.30	6.2	.71	.20	0	0	0
25	.48	2.2	.4	1.0	5.2	4.50	5.1	.48	.12	0	0	0
26	.43	2.1	.4	1.0	16.9	5.1	4.70	.39	.08	.02	0	0
27	.56	2.0	.4	.9	30	28	4.30	.34	.03	.94	0	.18
28	.97	1.9	.4	.8	142	14.7	3.70	.30	.03	.17	0	.88
29	.63	2.5	.3	6.8		7.5	3.00	.30	.31	.96	0	.25
30	.43	4.10	.3	81	71	5.4	.30	2.25	.96	.05	0	.97
31	.39		.3	72	50		.22		.97	0		
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					10.79	0.97	0.12	0.348	0.037		0.04	
November.....					87.17	.25	.22	2.91	.312		.35	
December.....					131.1	31	.3	4.23	.453		.52	
Calendar year 1938					2,939.59	206	0	8.05	.862		11.70	
January.....					339	81	.8	10.9	1.17		1.35	
February.....					910.6	142	5.2	32.5	3.48		3.62	
March.....					606.35	132	4.1	19.6	2.10		2.42	
April.....					674.9	116	3.00	22.5	2.41		2.69	
May.....					51.68	7.0	.22	1.67	.179		.21	
June.....					18.99	2.95	.03	.653	.068		.08	
July.....					8.46	.98	.0	.273	.029		.03	
August.....					47.65	27	.0	1.54	.165		.19	
September.....					285	.97	.0	.095	.010		.01	
Water year 1938- 39.....					2,869.54	142	.0	7.92	.848		11.51	

Little Shenango River at Greenville, Pa.

Location.- Water-stage recorder, lat. 41°25'15", long. 80°22'35", 1,500 feet below Williamson Crossing Bridge, 1 mile northeast of Greenville, Mercer County, and 2 miles above mouth. Zero of gage is 953.48 feet above mean sea level (general adjustment of 1912).

Drainage area.- 104 square miles.

Records available.- November 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; January 1914 to August 1923, November 1925 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 19 years (1914-18, 1920-22, 1926-39), 137 second-feet.

Extremes.- Maximum discharge during year, 1,810 second-feet Feb. 20 (gage height, 7.05 feet); minimum, 4.3 second-feet Sept. 26 (gage height, 0.72 foot).

1919-23, 1925-39: Maximum discharge, 4,600 second-feet Jan. 25, 1937 (gage height, 11.00 feet), from rating curve extended above 2,000 second-feet; minimum, 2.0 second-feet Aug. 21, 1923.

Remarks.- Records good except those for periods of ice effect, Nov. 26-29, Dec. 15 to Jan. 1, Jan. 14-29, Feb. 16-18, 23-25, which were computed on basis of gage heights, weather records, and records for nearby stations, and are fair. Some regulation at low stages from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	12	16	70	25	789	1,350	398	138	22	29	26	7.7	
2	13	14	84	46	482	412	308	97	19	22	15	8.5	
3	11	13	96	73	778	267	209	77	24	16	95	7.7	
4	10	15	361	222	499	214	154	68	99	14	100	44	
5	10	13	246	397	270	246	126	61	53	16	31	57	
6	14	23	143	512	203	296	211	56	31	25	22	20	
7	13	18	127	272	312	192	308	51	24	24	16	13	
8	18	18	104	163	329	133	183	48	33	18	17	10	
9	12	31	88	182	467	148	370	51	36	18	17	8.8	
10	10	31	105	116	518	140	190	76	31	14	18	8.5	
11	9.3	23	97	137	869	120	536	58	35	15	14	7.7	
12	11	21	78	105	322	560	604	47	28	12	13	8.8	
13	10	21	68	73	205	1,110	354	41	24	12	14	11	
14	14	58	56	62	175	425	452	40	30	12	16	10	
15	18	42	48	56	278	252	701	37	30	16	16	8.8	
16	15	28	40	53	230	203	586	36	22	12	13	8.8	
17	11	24	35	50	180	152	296	36	19	9.6	12	7.7	
18	9.6	43	33	48	165	119	505	33	19	9.2	11	7.7	
19	11	285	31	46	529	100	577	31	26	12	10	6.6	
20	13	257	30	45	1,620	104	326	31	26	9.2	11	6.6	
21	13	124	29	50	805	93	236	40	22	7.7	10	7.3	
22	15	76	28	46	262	95	185	62	22	7.7	9.2	6.9	
23	14	55	27	42	190	90	155	53	23	9.2	10	7.9	
24	14	49	27	40	160	87	130	37	17	8.5	9.6	6.9	
25	20	46	26	38	145	86	110	31	17	6.9	7.7	5.6	
26	15	44	26	37	174	101	101	28	15	7.7	8.1	6.2	
27	13	43	25	35	347	261	170	26	15	8.5	8.5	15	
28	16	42	24	34	710	266	84	24	13	9.2	7.7	28	
29	17	42	23	36	146	146	78	24	15	10	6.6	20	
30	17	55	22	378	342	86	24	24	12	12	5.6	16	
31	14	22	22	920	832		21	26	26	5.6			
Month				Second-foot-days		Maximum		Minimum		Mean		Per square mile	Run-off in inches
October.....				412.9		20		9.3		13.3		0.128	0.15
November.....				1,570		285		13		52.3		.503	.56
December.....				2,219		361		22		71.6		.688	.79
Calendar year 1938				44,212.4		1,700		6.6		121		1.16	15.82
January.....				4,279		920		25		138		1.33	1.53
February.....				12,013		1,620		145		429		4.12	4.29
March.....				8,942		1,350		86		288		2.77	3.19
April.....				8,727		701		76		291		2.80	3.12
May.....				1,483		138		21		47.8		.460	.53
June.....				814		99		13		27.1		.260	.29
July.....				428.4		29		6.9		13.8		.133	.15
August.....				575.6		100		5.6		18.6		.179	.21
September.....				385.7		57		5.6		13.0		.125	.14
Water year				41,852.6		1,620		5.6		115		1.11	14.95

Pymatuning Creek near Orangeville, Pa.

Location.- Water-stage recorder, lat. 41°18'40", long. 80°28'40", 2 miles above mouth, 3 miles southeast of Orangeville, Mercer County, and 3 miles north of Sharpsville. Zero of gage is 872.94 feet above mean sea level (general adjustment of 1912).

Drainage area.- 169 square miles.

Records available.- October 1918 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; January 1914 to August 1923, November 1925 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 21 years (1914-22, 1926-39), 203 second-feet.

Extremes.- Maximum discharge during year, 1,670 second-feet Feb. 21 (gage height, 8.39 feet); minimum, 0.2 second-foot Sept. 4 (gage height, 1.16 feet); minimum daily discharge, 0.6 second-foot Sept. 2.

1914-23, 1925-39: Maximum discharge, 3,250 second-feet Mar. 25, 1936 (gage height, 10.68 feet), from rating curve extended above 2,100 second-feet; minimum, that of Sept. 4, 1939; minimum daily discharge, 0.6 second-foot Sept. 24, 1933, Sept. 2, 1939.

Maximum stage known, 16.0 feet, from floodmark, former site and datum, Mar. 26, 1913, probably affected by backwater from Shenango River (discharge not determined).

Remarks.- Records good except those below 20 second-feet and those for periods of ice effect, Nov. 26-29, Dec. 16 to Jan. 1, Jan. 15-29 (computed on basis of gage heights, weather records, and records for nearby stations), all of which are fair. Discharge for periods of recorder failure, June 20-24, June 27 to July 1, July 3-10, computed on basis of once-daily gage readings and fragmentary record on recorder chart. Some regulation from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	12	75	24	1,020	1,190	568	83	16	32	134	1.3
2	8.8	11	102	46	1,200	1,400	603	82	15	16	69	.6
3	8.0	11	140	64	1,400	1,080	529	74	15	12	41	.8
4	7.4	9.6	251	144	1,320	701	410	61	33	12	39	2.1
5	6.8	11	286	264	1,100	592	234	50	39	18	46	6.0
6	6.5	13	286	374	753	442	187	45	52	21	30	6.4
7	5.6	13	277	364	627	324	229	37	67	22	18	5.6
8	6.8	16	268	354	568	251	226	34	79	25	14	4.0
9	7.4	20	229	344	538	190	196	36	76	25	14	3.4
10	7.4	20	172	286	763	180	198	48	92	14	12	4.0
11	7.7	21	132	176	895	132	467	55	88	10	11	4.4
12	7.4	18	111	125	926	679	541	51	66	9.5	10	4.4
13	7.7	18	97	103	808	991	676	42	50	7.6	12	6.4
14	9.6	21	77	66	865	1,280	661	32	37	8.5	17	5.2
15	9.2	21	57	60	523	930	753	28	32	5.6	12	4.6
16	9.2	23	46	55	354	622	727	26	31	4.4	16	4.4
17	8.8	22	38	52	260	440	676	27	26	4.0	8.0	4.0
18	8.0	33	32	50	220	230	868	24	21	4.8	9.8	3.1
19	9.6	127	30	47	678	116	1,110	23	19	4.8	5.6	2.2
20	11	189	28	44	1,170	97	1,100	22	18	4.0	5.2	3.4
21	12	202	27	47	1,620	83	824	30	18	3.7	4.0	4.0
22	12	170	26	44	1,260	81	580	47	17	3.1	3.7	3.4
23	12	132	26	41	775	79	416	62	20	3.1	3.1	2.8
24	14	93	25	38	534	81	238	66	19	3.1	2.6	2.2
25	14	67	24	36	394	84	135	58	25	2.5	2.5	3.1
26	12	54	24	34	260	95	104	42	26	6.9	2.2	3.4
27	15	50	24	33	305	172	86	28	24	77	2.2	12
28	14	48	23	32	802	242	70	21	17	35	2.5	12
29	15	47	22	32	228	60	18	12	12	50	1.6	9.0
30	16	60	21	595	410	65	17	20	139	1.0	12	12
31	15		20	994	490		16		212	3.4		
Month					Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....					313.9	16	5.6	10.1	0.060		0.07	
November.....					1,552.6	202	9.6	51.8	.306		.34	
December.....					2,996	286	20	96.6	.572		.66	
Calendar year 1938					54,622.8	2,140	2.3	150	.888		12.02	
January.....					4,968	994	24	160	.947		1.09	
February.....					21,938	1,620	220	784	4.64		4.83	
March.....					15,882	1,400	79	448	2.65		3.06	
April.....					15,517	1,110	60	451	2.67		2.98	
May.....					1,283	83	16	41.4	.245		.28	
June.....					1,070	92	12	35.7	.211		.24	
July.....					795.6	212	2.5	25.7	.152		.18	
August.....					543.3	134	1.0	17.5	.104		.12	
September.....					140.4	12	.6	4.68	.028		.03	
Water year 1938-39					62,999.8	1,620	.6	173.	1.02		13.88	

Connoquenessing Creek at Hazen, Pa.

Location.- Chain gage, lat. 40°49'00", long. 80°14'35", at highway bridge at Hazen, Beaver County, half a mile above mouth of Brush Creek. Zero of gage is 852.31 feet above mean sea level (general adjustment of 1912).

Drainage area.- 356 square miles.

Records available.- October 1919 to September 1921, October 1931 to September 1939 in reports of U. S. Geological Survey; June 1915 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 20 years (1919-39), 488 second-feet.

Extremes.- Maximum discharge during year, 10,200 second-feet Mar. 12 (gage height, 11.6 feet), from graph based on gage readings, from rating curve extended above 4,000 second-feet on basis of slope-area determination; minimum, 8.8 second-feet Sept. 20, 23 (gage height, 0.82 foot).

1915-39: Maximum discharge, 22,300 second-feet June 29, 1924 (gage height, 16.66 feet), from rating curve extended on basis of slope-area determination; minimum, 6.0 second-feet July 21-23, 1936 (gage height, 0.82 foot).

Remarks.- Records fair except those for periods of ice effect, Nov. 26-29, Dec. 1 to Jan. 1, Jan. 14-29, Feb. 17-19, 22-24, which were computed on basis of gage heights, weather records, and records for nearby stations, and are poor. Discharge for period of erroneous gage readings, Sept. 7-10, computed on basis of engineer's reading and records for nearby stations. Gage read twice daily. Some regulation from operation of mills upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	23	132	80	2,360	2,580	1,670	407	50	152	310	11
2	18	22	164	139	1,820	1,600	1,390	267	84	120	178	11
3	18	22	123	186	3,220	1,110	1,040	212	159	93	125	13
4	21	25	515	281	2,200	845	748	192	322	73	95	15
5	24	26	429	281	1,250	1,040	655	170	565	71	73	46
6	22	33	370	493	1,040	975	1,050	159	102	75	62	37
7	20	54	281	429	1,820	748	1,250	149	71	78	67	28
8	24	37	234	351	1,530	535	975	144	69	73	56	21
9	22	47	211	298	1,390	565	845	178	363	82	50	18
10	20	57	197	281	1,820	480	910	192	159	71	44	18
11	18	47	175	298	2,120	455	812	170	102	53	42	16
12	18	41	159	219	1,390	4,870	715	144	78	44	42	19
13	17	37	139	142	1,040	8,260	565	116	100	49	39	18
14	18	41	121	120	780	3,060	535	102	130	126	42	18
15	20	46	110	108	2,260	1,600	1,250	98	75	75	39	18
16	22	38	103	100	1,670	1,180	1,040	91	66	47	35	18
17	20	34	98	95	1,000	845	1,320	80	71	39	32	17
18	17	108	94	92	740	655	1,110	80	354	37	30	17
19	18	514	90	88	1,050	480	975	76	342	34	26	14
20	22	441	87	86	1,250	508	780	84	285	33	22	8.8
21	41	281	85	95	1,010	430	655	111	215	32	23	10
22	33	234	83	94	770	384	565	172	709	30	28	10
23	31	164	81	87	640	342	455	234	2,100	27	39	9.4
24	31	139	80	83	520	303	384	197	698	27	32	10
25	26	114	78	80	455	285	342	167	407	23	31	10
26	26	105	76	78	780	267	322	116	267	45	26	9.4
27	31	100	76	74	1,670	267	303	84	215	230	19	14
28	31	96	74	72	2,580	285	267	82	197	100	19	14
29	28	94	69	74		267	215	76	175	86	16	17
30	27	162	66	3,470		1,240	250	62	162	1,390	13	18
31	26		66	4,970		2,340		53		882	12	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				729	41	17	23.5	0.066	0.08			
November.....				3,182	514	22	106	.298	.33			
December.....				4,666	515	66	151	.424	.49			
Calendar year 1938				155,134	6,800	10	425	1.19	16.22			
January.....				13,344	4,970	72	430	1.21	1.40			
February.....				40,175	3,220	455	1,435	4.03	4.20			
March.....				38,801	8,260	267	1,252	3.52	4.06			
April.....				23,393	1,670	215	780	2.19	2.44			
May.....				4,465	407	53	144	.404	.47			
June.....				8,692	2,100	50	290	.815	.91			
July.....				4,297	1,390	23	139	.390	.45			
August.....				1,667	310	12	53.8	.151	.17			
September.....				503.6	46	8.8	16.8	.047	.05			
Water year 1938-39				143,914.6	8,260	8.8	394	1.11	15.05			

Slippery Rock Creek at Wurttemberg, Pa.

Location.- Chain gage, lat. 40°51'40", long. 80°14'35", at highway bridge at Wurttemberg, Lawrence County, 1 mile above mouth. Zero of gage is 812.48 feet above mean sea level (general adjustment of 1907).

Drainage area.- 406 square miles.

Records available. October 1918 to September 1920, October 1931 to September 1939 in reports of U. S. Geological Survey; January 1912 to September 1939 in reports of Pennsylvania Department of Forests and Waters.

Average discharge.- 26 years (1912-32, 1933-39), 558 second-feet.

Extremes.- Maximum discharge during year, 9,900 second-feet Mar. 12 (gage height, 8.8 feet, from graph based on gage readings); minimum observed, 25 second-feet Sept. 24 (gage height, 2.24 feet).

1912-39: Maximum discharge, 25,700 second-feet Jan. 25, 1937 (gage height, 12.05 feet, from floodmark), from rating curve extended above 8,000 second-feet; minimum observed, 10 second-feet Aug. 22, 25, 1938; minimum daily discharge, 12 second-feet Aug. 25, 1938.

Remarks.- Records fair except those for periods of ice effect, Nov. 28-29, Dec. 16 to Jan. 2, Jan. 15-29, Feb. 17, 18, 23, 24, which were computed on basis of gage heights, weather records, and records for nearby stations, and are poor. Discharge for period of erroneous gage readings, Feb. 15, 16, computed on basis of engineer's gage reading and records for nearby stations. Gage read twice daily. Regulation from power operations upstream.

Discharge, in second-feet, water year October 1938 to September 1939.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	54	227	110	3,040	3,930	1,910	565	117	242	177	30
2	31	50	239	150	2,610	2,240	1,810	454	111	139	121	30
3	29	54	251	251	2,890	1,420	1,330	351	129	83	99	38
4	31	52	640	528	2,130	1,200	962	296	309	77	79	36
5	39	50	848	790	1,330	1,910	850	270	366	81	66	32
6	37	72	555	1,230	1,120	1,910	1,000	253	187	81	62	35
7	39	77	425	930	1,420	1,330	1,710	245	123	77	54	38
8	43	87	355	582	1,420	850	1,240	217	195	81	56	38
9	37	131	293	445	1,510	775	1,000	237	257	106	66	32
10	36	150	280	378	1,610	700	1,080	400	157	126	60	32
11	34	128	271	495	2,360	700	1,120	375	132	90	56	33
12	34	100	247	396	1,420	5,220	1,000	291	111	68	50	29
13	36	94	208	310	1,120	8,840	888	229	108	62	56	38
14	46	117	176	255	888	4,680	850	195	150	68	85	43
15	37	108	153	225	1,710	2,240	775	180	160	88	62	40
16	36	94	140	200	1,910	1,510	1,240	187	121	83	56	38
17	37	90	130	185	1,150	1,120	1,510	173	88	72	56	42
18	37	205	120	175	860	925	1,510	160	111	72	48	40
19	39	760	115	170	1,460	700	1,610	157	308	66	47	32
20	52	825	110	160	2,680	598	1,120	170	274	54	43	35
21	54	528	105	180	2,020	535	888	164	227	50	40	32
22	54	324	100	170	1,200	494	738	164	419	48	47	29
23	54	251	100	160	900	459	598	337	832	47	45	29
24	74	220	99	150	740	422	471	332	504	42	42	25
25	63	194	97	145	630	411	448	291	274	36	42	27
26	59	180	94	135	850	380	422	206	177	32	40	33
27	65	170	92	125	1,610	416	395	164	132	119	40	45
28	61	160	90	120	2,480	1,530	366	157	116	74	38	90
29	54	150	84	115	1,080	332	138	104	74	74	35	114
30	63	183	80	2,900	1,400	337	126	134	153	153	35	119
31	59		82	4,720	2,890		123			212	32	
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches		
October.....				1,399	74	29	45.1	0.111		0.13		
November.....				5,658	825	50	189	.466		.52		
December.....				6,806	848	80	220	.542		.62		
Calendar year 1938				188,969	7,100	12	518	1.28		17.31		
January.....				16,885	4,720	110	545	1.34		1.54		
February.....				44,968	3,040	630	1,606	3.96		4.12		
March.....				52,615	8,840	380	1,697	4.18		4.82		
April.....				29,510	1,910	332	984	2.42		2.70		
May.....				7,607	565	123	245	.603		.70		
June.....				6,433	832	88	214	.527		.59		
July.....				2,703	242	32	87.2	.215		.25		
August.....				1,835	177	32	59.2	.146		.17		
September.....				1,254	119	25	41.8	.103		.11		
Water year 1938-39				177,673	8,840	25	487	1.20		16.27		

Stream	Location	Date	Gage height	Discharge	Drainage area	Per square mile
Delaware River Basin	Palmerton.....	Sept. 18	2.38	22.4	77.0	0.291
Aquashicola Creek	do.....	Sept. 28	2.41	23.8	77.0	0.291
Monocacy Creek	New Street Bridge, Bethlehem.....	Nov. 4		124	49.6	2.50
do.....	do.....	Dec. 13		176	49.6	3.55
do.....	do.....	Jan. 24		90.0	49.6	1.81
do.....	do.....	Mar. 10		217	49.6	4.38
do.....	do.....	Apr. 21		150	49.6	3.83
do.....	do.....	May 30		183	49.6	3.69
Schuylkill River	Port Clinton, above mouth of Little Schuylkill River.....	Nov. 21		586	206	2.85
do.....	do.....	Nov. 22		5,960	206	28.7
do.....	do.....	Dec. 6		1,630	206	7.95
do.....	do.....	Dec. 10		1,890	206	9.22
do.....	do.....	Dec. 12		1,150	206	5.61
do.....	do.....	Dec. 14		865	206	4.22
do.....	do.....	Jan. 23		201	206	.980
do.....	do.....	Mar. 6		826	206	4.02
do.....	do.....	Apr. 10		540	206	2.63
do.....	do.....	Apr. 21		755	206	3.69
do.....	do.....	Aug. 21		742	206	3.62
do.....	do.....	Oct. 31	2.06	413	543	1.20
do.....	do.....	Oct. 31	2.04	382	543	1.11
do.....	do.....	May 29	1.60	244	543	.711
do.....	do.....	July 15	1.29	122	543	.356
do.....	do.....	Nov. 22		406	138	2.93
do.....	do.....	Dec. 6		2,890	138	20.9
do.....	do.....	Dec. 8		1,100	138	7.97
do.....	do.....	Dec. 10		1,260	138	9.13
do.....	do.....	Dec. 12		786	138	5.68
do.....	do.....	Dec. 14		169	138	1.20
do.....	do.....	Jan. 23		636	138	4.61
do.....	do.....	Mar. 10		373	138	2.70
do.....	do.....	Apr. 21		496	138	3.59
do.....	do.....	Aug. 21		247	138	1.79
do.....	do.....	June 7		9.63	45.9	.210
do.....	do.....	July 18		1.58	45.9	.034
do.....	do.....	Aug. 16		1.27	1.7	12.2
do.....	do.....	Mar. 1		.56	1.23	.447
do.....	do.....	Nov. 29		.59	1.23	.480
do.....	do.....	Jan. 16		.25	1.23	.203
do.....	do.....	May 22		13.1	36.5	.359
do.....	do.....	Jan. 19		53.0	36.5	1.45
do.....	do.....	Apr. 14		2.26	36.5	.062
do.....	do.....	Sept. 20		98.0	228	.434
do.....	do.....	Sept. 25		89.6	228	.393
do.....	do.....	Sept. 25		81.2	228	.356

Miscellaneous Discharge Measurements for the year ending Sept. 30, 1939.

(Continued)

Stream	Location	Date	Gage height	Discharge	Drainage area	Per square mile
Ohio River Basin						
Mathews Run.....	Mouth at Youngville.....	Jan. 6		139	15.7	8.85
do.....	do.....	Feb. 17		52.7	15.7	3.36
do.....	do.....	Mar. 14		98.3	15.7	6.26
do.....	do.....	Apr. 20		49.5	15.7	3.15
Tionesta Creek.....	do.....	Sept. 13	1.50	44.9	479	.094
Cherrytree Run.....	Mouth, 1 mile north of Houseville.....	Feb. 20		228	16.1	14.2
do.....	do.....	Mar. 16		60.0	16.1	3.73
do.....	do.....	Apr. 18		70.8	16.1	4.40
French Creek.....	Mouth at Franklin.....	July 17		498	1,235	.405
Monong Creek.....	Monong Creek Dam.....	Sept. 11	1.34	21.9	344	.064
Conemaugh River.....	Tunnelton.....	Sept. 13		251	1,358	.185
do.....	do.....	Sept. 19	1.93	235	1,358	.173
Loyalhanna Creek.....	do.....	Sept. 5	1.15	10.1	172	.059
do.....	do.....	Sept. 12	.98	4.41	172	.026
Loyalhanna Creek Dam.....	do.....	Sept. 12	.49	27.5	292	.083
Mouth at New Geneva.....	do.....	Apr. 5		110	65.7	1.67
do.....	do.....	May 19		15.8	65.7	1.240
Bridge, 4 miles north of Greensboro.....	do.....	Apr. 5		59.4	35.0	1.67
Youghiogheny River.....	do.....	Sept. 15	1.74	207	436	.475
Beaver River.....	Beaver Falls.....	Sept. 8	3.43	618	5,106	.199

Summary of run-off in second-feet per square mile, run-off depth in inches, precipitation, and percent run-off to precipitation, for the year ending Sept. 30, 1939.

Delaware River Basin

Station	Drainage area square miles	Run-off in second-feet per square mile												Precipitation	Per cent		
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			Year	Depth in inches
Delaware River at Port Jervis, N. Y.....	3,076	1.06	1.63	3.50	1.25	3.08	3.89	4.49	1.25	0.577	0.393	0.421	0.342	1.81	24.62	38.17	64.5
Delaware River at Belvidere, N. J.....	4,542	1.05	1.80	3.88	1.41	3.45	3.75	4.12	1.17	.448	.252	.257	.181	1.79	24.24	39.97	60.6
Delaware River at Riegelsville, N. J.....	6,344	1.17	1.84	3.92	1.51	3.62	3.87	4.19	1.30	.587	.361	.350	.246	1.89	25.59	40.68	62.9
Delaware River at Trenton, N. J.....	6,786	1.15	1.60	3.85	1.49	3.67	3.80	4.12	1.27	.574	.355	.352	.227	1.86	25.24	41.13	61.4
Lackawaxen River at Hawley.....	280	.607	.976	3.18	1.37	3.75	3.84	3.49	.952	.284	.176	.372	.281	1.59	21.61	42.79	50.5
Wallenpaupack Creek at Wilsonville.....	228	.261	1.01	3.70	1.20	4.08	3.16	3.07	.763	.136	.301	.093	-.191	1.38	18.75	38.32	47.7
Bushkill Creek at Shoemakers.....	117	1.25	1.70	4.50	1.93	4.10	3.82	3.79	1.49	.702	.342	.192	.087	1.98	26.87	42.67	63.0
Lehigh River at Tannersville.....	322	1.08	2.09	4.29	1.60	4.20	3.67	3.61	1.17	.788	.441	.429	.416	1.96	26.45	40.54	65.2
Lehigh River at Bethlehem.....	1,280	1.25	1.86	4.13	1.68	3.93	3.58	3.44	1.36	.820	.548	.517	.412	1.96	26.45	40.54	65.2
Tohickon Creek near Pipersville.....	97.4	.576	.655	2.83	1.66	5.24	3.29	3.37	.288	.139	.251	.233	.036	1.53	20.75	41.73	49.7
Schuylkill River at Langhorne.....	210	.600	.490	2.96	1.66	5.11	2.90	3.40	.667	.358	.157	.313	.079	1.54	20.84	40.44	51.5
Schuylkill River at Pottstown.....	1,147	.986	1.28	3.30	1.53	3.97	3.13	3.06	1.25	.584	.459	.779	.319	1.71	23.16	40.44	57.1
Little Schuylkill River at Philadelphia.....	1,893	.961	1.12	3.17	1.60	4.43	3.23	3.20	1.12	.608	.415	.761	.285	1.72	23.41	41.62	56.4
Perkiomen Creek at Graters Ford.....	42.9	1.38	2.21	4.69	2.38	4.27	3.45	3.75	1.31	.634	.436	.452	.541	2.11	28.66	44.37	64.6
Ridley Creek at Moylan.....	279	1.652	.613	2.65	1.56	4.78	2.59	2.99	.859	.470	.254	.351	.117	1.43	19.35	42.94	45.1
Chester Creek near Chester.....	31.9	1.25	1.04	2.10	1.91	3.86	3.02	3.29	1.70	1.24	.649	1.16	.574	1.80	24.46	43.92	55.7
Brandywine Creek at Chadds Ford.....	61.1	1.17	1.03	1.91	1.61	3.49	2.77	3.18	1.70	1.33	.684	1.34	.535	1.72	23.50	43.77	53.2
	257	1.05	.878	1.74	1.45	3.73	2.76	2.87	1.44	1.11	.686	1.49	.613	1.64	22.22	44.81	49.6

Summary of run-off in second-feet per square mile, run-off depth in inches, precipitation, and percent run-off to precipitation, for the year ending Sept. 30, 1939.

Susquehanna River Basin

Station	Drainage area Square miles	Run-off in second-feet per square mile												Precipitation Depth in inches	Run-off to precipitation Per cent
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year	
Susquehanna River Basin	7,797	0.480	0.689	2.10	0.778	3.09	3.38	2.80	0.545	0.207	0.106	0.097	0.060	1.18	54.3
North Branch of Susquehanna River at Towanda															
North Branch of Susquehanna River at	9,960	.479	.714	2.31	.821	3.12	3.26	2.75	.614	.246	.129	.123	.077	1.21	53.3
North Branch of Susquehanna River at															
Danville	11,250	.491	.739	2.45	.831	3.11	3.26	2.93	.647	.250	.143	.148	.081	1.24	53.6
Susquehanna River at Sunbury	12,300	.367	.564	1.78	.741	3.10	3.26	2.77	.772	.318	.191	.188	.079	1.16	48.7
Susquehanna River at Harrisburg	22,100	.357	.539	1.72	.763	3.25	3.26	2.60	.887	.402	.269	.269	.110	1.19	48.5
Susquehanna River at Marietta	25,990	.379	.551	1.78	.769	3.31	3.23	2.87	.856	.401	.265	.269	.118	1.21	48.6
Towanda Creek near Monroeton	214	.114	.166	2.61	.821	3.79	2.86	1.81	.701	.164	.046	.084	.027	1.06	45.7
Punkamook Creek at Nixon	383	.550	1.44	3.66	.911	4.17	2.86	2.68	.809	.200	.087	.084	.096	1.42	50.8
Lackawanna River at Old Forge	332	.513	1.43	3.80	1.30	3.65	3.16	3.22	1.33	.608	.422	.401	.380	1.42	49.1
Wapwallopen Creek near Wapwallopen	45.8	.362	1.29	3.76	1.15	3.65	2.73	2.80	.880	.334	.176	.166	.091	1.42	49.1
Fishing Creek near Bloomsburg	274	.097	1.04	3.42	1.12	4.07	3.45	3.07	.787	.271	.201	.206	.109	1.80	53.8
West Branch of Susquehanna River at Bower	315	.097	1.04	3.42	1.12	4.07	3.45	3.07	.787	.271	.201	.206	.109	1.80	53.8
West Branch of Susquehanna River at Remov	2,975	.060	.180	.540	.490	3.79	3.83	2.63	.856	.483	.321	.080	.066	1.08	44.5
West Branch of Susquehanna River at															
Williamsport	5,682	.135	.193	.485	.397	3.39	3.51	2.66	.881	.392	.271	.118	.078	1.03	42.5
Clearfield Creek at Dimeling	5,371	.083	.127	.201	.450	3.91	3.61	2.25	.709	1.10	.693	.106	.086	1.09	42.4
Sinnemahoning Creek at Sinnemahoning	699	.083	.127	.201	.450	3.91	3.61	2.25	.709	1.10	.693	.106	.086	1.09	42.4
Driftwood Branch of Sinnemahoning Creek at															
Starding Run	281	.107	.334	.641	.904	3.79	3.47	2.31	1.19	.206	.081	.063	.074	1.08	44.7
North Bald Eagle Creek at Beech Creek															
Station	559	.238	.397	.449	.440	2.94	3.24	2.19	.916	.533	.392	.284	.283	1.00	40.5
Pine Creek at Cedar Run	604	.096	.172	.525	.643	2.86	3.48	2.28	.613	.215	.098	.064	.065	1.02	41.5
Lycoming Creek near Trout Run	173	.136	.369	1.80	.579	3.83	2.94	2.65	.897	.259	.117	.116	.085	1.16	45.8
Loyalsock Creek at Loyalsock	443	.293	.828	2.87	1.27	3.65	2.94	2.70	.975	.334	.246	.175	.088	1.36	48.7
Penn Creek at Penns Creek	301	.207	.286	.840	.741	3.50	3.37	2.60	1.01	.486	.320	.214	.161	1.13	42.6
Mahantango Creek East near Dalmatia	162	.449	1.27	3.90	1.70	3.86	2.86	2.53	.778	.258	.116	.229	.104	1.51	52.6
Frankstown Branch of Juniata River at															
Williamsburg	291	.216	.286	.322	.574	3.31	2.90	2.53	.979	1.51	.729	.378	.248	1.14	40.5
Juniata River at Mapleton Depot	2,030	.149	.197	.547	.682	3.05	2.72	2.28	.983	.889	.511	.245	.182	1.01	36.4
Juniata River at Newport	3,354	.148	.215	.753	.682	3.05	2.69	2.27	.935	.677	.499	.237	.154	1.01	38.1
Little Juniata River at Spruce Creek	220	.316	.354	.387	.577	3.35	3.61	2.87	1.11	.117	.718	.399	.343	1.23	45.2
Standing Stone Creek near Huntingdon	128	.164	.210	.805	.741	3.05	2.61	1.99	.953	.403	.210	.127	.117	1.08	34.1
Raystown Branch of Juniata River at Saxton	756	.139	.163	.601	.644	3.47	2.79	2.53	1.07	.113	.556	.214	.155	1.10	38.2
Dunning Creek at Belden	172	.101	.127	.285	.723	4.02	2.65	2.53	.942	1.32	.828	.268	.133	1.12	38.6
Brush Creek at Gapville	36.8	.098	.179	1.52	1.06	3.25	2.54	2.47	.851	1.31	.851	.157	.152	1.17	39.2
Great Trough Creek near Markisburg	84.6	.067	.116	.934	.770	3.39	2.53	2.28	.882	.535	.379	.075	.074	1.34	39.6
Aughwick Creek near Three Springs	205	.060	.155	1.31	.839	3.39	2.40	2.40	.669	.517	.447	.087	.072	1.01	37.3
Tuscarora Creek near Fort Royal	214	.122	.282	1.01	.688	3.07	2.27	2.11	.680	.236	.235	.128	.076	1.23	35.0

Summary of run-off in second-feet per square mile, run-off depth in inches, precipitation, and percent run-off to precipitation, for the year ending Sept. 30, 1939.

Susquehanna River Basin
(Continued)

Station	Drainage area Square miles	Run-off in second-feet per square mile												Precipitation Depth in inches	Run-off to precipitation Per cent
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year	
Susquehanna River Basin	57.2	0.142	0.355	1.37	1.21	3.92	2.78	2.22	0.480	0.212	0.178	0.175	0.086	1.07	43.4
Coccolamus Creek near Millertown	200	.171	.274	1.12	1.13	3.86	2.61	2.46	.826	.319	.318	.164	.130	1.10	39.9
Sherman Creek at Shermansdale	21.6	.681	1.41	3.64	2.68	3.65	3.13	3.22	1.21	.846	.501	.294	.212	1.69	54.1
Clark Creek near Carsonville	35.0	.311	1.62	3.46	1.99	3.66	2.87	3.20	1.02	.380	.274	.252	.147	1.61	53.0
Stony Creek near Dauphin	470	.196	.282	1.17	1.64	2.77	2.09	1.87	.681	.486	.681	.283	.357	1.964	35.3
Conodoguinet Creek near Hogestown	333	.359	1.70	4.11	1.56	4.14	3.12	2.86	.880	.339	.216	.266	.171	1.70	56.1
Saratoga Creek at Harper Tavern	13.5	.507	1.35	3.01	1.84	4.01	2.90	3.00	.978	.387	.241	.216	.192	1.53	50.3
West Conango Creek near Manchester	510	.135	.361	2.02	1.69	4.06	2.17	2.16	.470	.198	.216	.118	.157	1.07	37.0
West Conango Creek near Manchester	174.3	.214	.361	1.28	.871	2.97	1.99	1.84	.911	.664	.440	.210	.315	1.92	31.6
Codorus Creek at Spring Grove	117	.504	.570	1.38	1.02	3.04	2.23	1.85	1.03	.696	.526	.488	.459	1.14	38.7
South Branch of Codorus Creek near York															
Conestoga Creek at Lancaster	322	.497	.509	1.54	.978	3.67	2.49	2.30	.950	.512	.460	.621	.280	1.22	42.0

[illegible]

Station	Drainage area	Run-off in second-feet per square mile												Run-off	Depth in inches	Precipitation	Per cent
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.				
Square miles																	
Ohio River Basin	541	0.227	0.684	1.28	1.27	3.11	3.83	2.85	0.699	0.298	0.390	0.235	0.100	1.23	16.77	34.66	48.4
Allegheny River at Larabee.....	560	.524	1.11	1.40	1.68	3.53	4.02	3.12	.642	.294	.407	.259	.109	1.38	18.68	35.40	52.8
Allegheny River at Eldred.....	2,179	.594	1.12	1.37	1.54	4.11	4.03	3.55	.643	.389	.223	.254	.118	1.46	19.83	35.98	55.1
Allegheny River near Kinross.....	5,982	.572	.942	1.24	1.58	3.96	3.73	3.13	.658	.360	.289	.256	.128	1.36	18.50	36.00	51.4
Allegheny River at Franklin.....	7,671	.539	.863	1.17	1.45	4.23	3.84	3.19	.659	.367	.252	.268	.124	1.36	18.83	35.93	52.4
Allegheny River at Kittanning.....	8,973	.511	.749	1.09	1.47	4.38	3.56	3.06	.636	.310	.272	.256	.156	1.35	18.34	36.25	50.6
Allegheny River at Natrona.....	11,410	.255	.587	.974	1.33	4.71	3.26	3.30	.683	.813	.706	.320	.180	1.40	19.01	39.51	48.1
Ohio River at Sewickley.....	19,500	.268	.599	1.07	1.33	4.41	3.83	3.49	.679	.450	.405	.311	.182	1.57	21.26	37.02	57.4
Brokenstraw Creek at Youngsville.....	521	.586	1.29	1.27	1.84	4.71	3.81	3.52	.773	.456	.549	.308	.147	1.48	20.04	36.53	54.9
Tionesta Creek at Lynch.....	233	.219	.647	1.07	1.54	4.31	3.81	3.52	.679	.456	.549	.308	.147	1.48	20.04	36.53	54.9
Oil Creek at Romeville.....	481	.193	.647	1.10	1.55	3.68	3.52	3.11	.773	.356	.356	.312	.141	1.28	17.41	35.40	47.8
French Creek at Carters Corners.....	300	.407	1.39	1.22	1.93	5.38	3.78	3.57	.680	.433	.450	.280	.192	1.53	20.71	36.25	58.8
French Creek at Venango.....	208	.606	1.87	1.45	2.17	5.73	4.15	3.25	.412	.282	.279	.179	.174	1.68	22.85	36.21	63.1
French Creek at Saegertown.....	639	.472	1.54	1.39	1.89	4.72	4.19	3.47	.871	.355	.322	.191	.150	1.58	21.39	35.12	60.9
French Creek at Utica.....	1,028	.375	1.09	1.24	1.69	4.90	4.19	3.43	.482	.377	.342	.194	.146	1.43	19.49	33.87	57.5
Sugar Creek at Sugar Creek.....	1,166	.561	1.40	1.28	1.96	4.84	3.46	3.16	.669	.392	.534	.319	.192	1.48	20.02	33.47	59.8
Clarion River at Gookburg.....	807	.161	.466	.860	1.27	4.05	3.31	3.14	.666	.323	.207	.803	.135	1.40	15.42	36.17	42.6
Clarion River near Piquette.....	951	.161	.466	.840	1.20	3.76	3.23	2.77	.846	.281	.145	.175	.110	1.14	15.87	35.22	45.1
Redbank Creek at Mayport.....	438	.115	.350	.642	1.05	4.90	3.74	2.49	.504	.206	.149	.253	.085	1.17	16.17	35.37	45.7
Redbank Creek at St. Charles.....	938	.127	.379	.638	1.07	4.92	3.83	2.46	.513	.235	.147	.246	.081	1.19	16.17	35.37	45.7
Monongahela River at Punxsutawney.....	149	.124	.228	.382	.832	4.96	3.69	2.50	.862	.646	.460	.201	.144	1.23	16.33	33.46	49.7
Monongahela River near Dayton.....	321	.110	.275	.399	.994	5.83	4.12	2.87	.844	.604	.533	.175	.084	1.37	16.82	34.80	53.4
Monongahela River at Mahoning Creek Dam.....	344	.110	.235	.433	.983	5.25	3.94	2.84	.808	.626	.442	.150	.080	1.50	17.62	34.80	53.4
Crooked Creek at Idaho.....	191	.066	.160	.383	1.22	5.50	3.13	2.56	.469	1.45	.644	.193	.038	1.28	17.45	36.05	47.9
Crooked Creek near Ford City.....	280	.061	.142	.299	1.14	4.79	3.21	2.43	.496	1.78	.521	.162	.033	1.23	16.66	36.05	46.2
Stony Creek at Hollisville.....	244	.084	.150	.426	1.04	5.56	3.05	3.08	1.16	.824	.639	.036	.194	1.32	17.97	39.74	45.2
Stony Creek at Fortalls.....	451	.140	.172	.386	.983	.949	5.26	3.10	1.20	.824	.639	.036	.194	1.32	17.97	39.74	45.2
Conemaugh River at Seward.....	715	.114	.181	.356	.983	5.44	3.21	3.23	1.35	1.03	.713	.124	.182	1.38	18.71	39.07	47.9
Kiskiminetus River at Vandergrift.....	1,826	.140	.181	.430	.984	5.25	2.95	3.03	1.36	1.03	.713	.124	.182	1.38	18.71	39.07	47.9
Little Conemaugh River at East Conemaugh.....	185	.094	.176	.387	1.17	5.68	3.14	2.76	1.25	.786	.578	.129	.182	1.26	17.18	37.89	45.3
Blacklick Creek at Blacklick.....	590	.146	.214	.521	1.23	5.01	2.75	3.05	.947	.635	.787	.449	.081	1.25	16.98	37.12	45.7
Loyalhanna Creek at New Alexandria.....	265	.187	.479	1.14	1.48	6.24	3.52	4.20	.678	1.61	.460	.479	.081	1.25	16.98	37.12	45.7
Monongahela River at Greensboro.....	5,213	.187	.479	1.14	1.48	5.93	3.52	4.20	.678	1.61	.460	.479	.081	1.25	16.98	37.12	45.7
Monongahela River at Charleroi.....	6,213	.187	.479	1.14	1.48	5.93	3.52	4.20	.678	1.61	.460	.479	.081	1.25	16.98	37.12	45.7
Monongahela River at Braddock.....	7,337	.187	.479	1.14	1.48	5.93	3.52	4.20	.678	1.61	.460	.479	.081	1.25	16.98	37.12	45.7
South Fork of Tumble Creek at Jefferson.....	180	.004	.035	.228	1.11	4.50	2.51	3.80	.648	1.35	1.38	.429	.174	1.70	23.05	47.04	49.0
Toughougheny River at Cornellsville.....	1,386	.007	.031	.228	1.11	4.50	2.51	3.80	.648	1.35	1.38	.429	.174	1.70	23.05	47.04	49.0
Toughougheny River at Cornellsville.....	1,386	.007	.031	.228	1.11	4.50	2.51	3.80	.648	1.35	1.38	.429	.174	1.70	23.05	47.04	49.0
Toughougheny River at Sellersville.....	1,715	.066	.064	.343	1.36	5.84	3.45	4.03	1.01	1.49	.900	.103	.004	1.11	14.99	38.56	38.9
Casselman River at Markleton.....	582	.066	.064	.343	1.36	5.84	3.45	4.03	1.01	1.49	.900	.103	.004	1.11	14.99	38.56	38.9

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